



IT shops sifting RIM's bold promises and plans. **PAGE 18**

NETWORKWORLD

THE CONNECTED ENTERPRISE ≡ MAY 7, 2012

PART TWO

CLEAR
CHOICE
TEST

Next-gen firewalls impress

Check Point,
SonicWall
Fortinet lead
the way in four-
product test of
next-generation
features.

Page
28



Interop to put SDN under the spotlight

BY BRANDON BUTLER

THE POTENTIAL game-changing technology that surrounds software-defined networking will be center stage at Interop this week with high-profile product introductions, technology demos and information sessions all set to roll.

While mobility, cloud computing, security and business collaboration tools are expected to be introduced at the show in Las Vegas, which will see an estimated 13,000 attendees and 350 exhibitors, SDN will be showcased by multiple participants. Arista Networks, for example, will demonstrate how to build a software-defined cloud network using its data center switches and controllers from partners VMware, Big Switch and Nebula.

► See **Interop**, page 13



SPECIAL FOCUS

Hottest IT skill? Cybersecurity

BY CAROLYN DUFFY MARSAN

EMBATTLED BY hactivists, cybercriminals and foreign rivals seeking to steal proprietary information, U.S. corporations are ramping up hiring of cybersecurity experts, with open jobs reaching an all-time high in April.

The need for cybersecurity experts spans all industries, from financial services, manufacturing and utilities to healthcare and retail. Among the major U.S. companies trying to fill cybersecurity-related positions are Boeing, Baylor Health Care System, Verisign and Office Depot.

Cybersecurity jobs also are plentiful in the U.S. federal government market. For example, the Energy Department's Idaho National Lab is seeking a senior cybersecurity researcher to support its lead nuclear research and development facility.

► See **Cybersecurity**, page 22





Virtualize, the plug-and-play way.

With numerous hardware, software and networking options to choose from, virtualization can be a really complex process. The new IBM BladeCenter® Foundation for Cloud with Intel® Xeon® processors changes all that, dramatically.

It's a workload-ready platform with built-in management, so it's quick to deploy and easy to manage. Also, the system integrates seamlessly with your existing infrastructure. So you can get started at once, without wasting precious resources.

In addition, you have the option to transition to the cloud on your terms, not on your vendor's. For improved business agility and reduced IT costs, look to the IBM BladeCenter Foundation for Cloud.

Take 10 minutes to see for yourself.

See how the IBM BladeCenter Foundation for Cloud makes things easy for you. Visit ibm.com/systems/foundation

IBM, the IBM logo, ibm.com and BladeCenter are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. © International Business Machines Corporation 2011. All rights reserved.



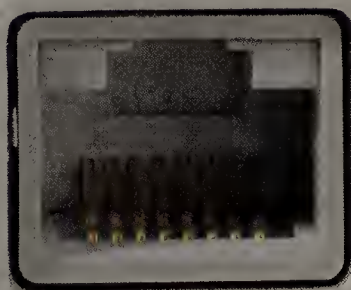
**Powerful.
Intelligent.**

WHY

can't this...



work like this?



Well, now it can.

A Meru WLAN restores your power of control and freedom of choice, freeing you from the limitations of traditional networks by giving you virtually wire-like quality, radically easier management, and the ability to add on nearly unlimited devices. Scalability, flexibility, and simplicity are yours. Regain control of your Wi-Fi network at merunetworks.com

Wi-Fi without the WHY.

FROM THE EDITOR | JOHN DIX

Don't flush privacy in the name of security

On the face of it, the Cyber Intelligence Sharing and Protection Act (CISPA) that the U.S. House of Representatives just passed seems to address the long-held notion that encouraging private and public sector concerns to share security information will improve our general security.

And while the goal of CISPA is noble and the need warranted (even coveted by some enterprises looking for a way to share information while reducing legal liability), the devil is in the details, and unfortunately CISPA goes too far in terms of trading off our liberties.

CISPA, which passed the House by a vote of 248 to 168, would lead to the establishment of "procedures to allow elements of the intelligence community to share cyber threat intelligence with private-sector entities and utilities and to encourage the sharing of such intelligence."

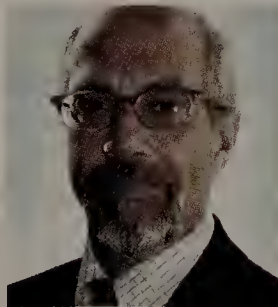
The bill identifies types of data the federal government will not be able to share, including library usage and book purchase records, and firearm, tax, education and medical records. And it would limit the government to using cyberthreat information for: cybersecurity, cybersecurity crimes, protection of individuals from death or bodily harm, risk of sexual exploitation (such as child pornography) and national security.

The effort to focus the goal on information sharing while preventing abuse could be why the bill has received the backing of tech giants such as IBM, AT&T, Oracle and Symantec. As Facebook says in a letter to Congress, "Your legislation removes burdensome rules that currently can inhibit protection of the cyber ecosystem, and helps provide a more established structure for sharing within the cyber community while still respecting the privacy rights ... of users" (see tinyurl.com/7qh2zg4).

But CISPA detractors, a list that includes the Electronic Frontier Foundation and the ACLU, say the terms of use are too broad (a lot can be covered in "cybersecurity") to safeguard citizens' right to privacy. More concerning: CISPA would allow companies to share information with government military entities, including the National Security Agency, and then protect the companies who shared the information from citizen lawsuits if someone cries foul.

CISPA even spooks GOP presidential candidate Ron Paul, who said in a speech: CISPA "permits both the federal government and private companies to view your private online communications with no judicial oversight ... It permits them to hand over your private communications ... without a warrant, circumventing the well-known established federal laws like the Wiretap Act and the Electronic Communications Privacy Act" (see tinyurl.com/7muxqw5).

CISPA, while seemingly good for business, is bad business. Hopefully the Senate, which is working on its own version (the Cybersecurity Act of 2012), will address the shortcomings.



John A. Dix

- 8 Bits** Comments, Blogs and Online
- 12 Q&A** Zynga infrastructure CTO: Making hardware cool again. BY BRANDON BUTLER
- 14 Q&A** Kaiser Permanente CIO: Clean bill of health for e-medical records. BY JOHN GALLANT
- 18 Trend Analysis** Why Linux is a desktop flop. BY MARIA KOROLOV
- 24 Trend Analysis** IT shops sifting RIM's bold promises and plans. BY JOHN COX
- 25 Tool Shed Gearhead** An RDP client and a smartphone 'copter. BY MARK GIBBS
- 26 Cool Tools** Easy-to-mold custom earbuds; 2TB portable storage for Mac users. BY KEITH SHAW
- 28 Clear Choice Test** Next-generation firewalls: Off to a good start. BY JOEL SNYDER
- 42 Backspin** Thwarting employers asking for Facebook access. BY MARK GIBBS
- 42 Net Buzz** Watch Steve Jobs play FDR in Apple film, circa '1984.' BY PAUL MCNAMARA

492 Old Connecticut Path, P.O. Box 9002
Framingham, MA, 01701-9002
Main Phone: (508) 766-5301
E-mail: firstname_lastname@nww.com
Editorial Calendar: <http://tinyurl.com/39sf649>

EDITORIAL

Editor in Chief: John Dix
Online Executive Editor, News: Bob Brown
Executive Features Editor: Neal Weinberg
Community Editor: Colin Neagle
Multimedia Programming Director: Keith Shaw

NEWS EDITORS

Online News Editor: Michael Cooney
Online News Editor: Paul McNamara
Online Associate News Editor: Ann Bednarz

REPORTERS

John Cox, Senior Editor
Jim Duffy, Managing Editor
Tim Greene, Senior Editor
Carolyn Duffy Marsan, National Correspondent
Ellen Messmer, Senior Editor
Brad Reed, Senior Writer
Brandon Butler, Staff Writer
Jon Gold, Staff Writer

PRINT LAYOUT/WEB PRODUCTION

Managing Editor: Ryan Francis
Web Producer: Melissa Andersen

DESIGN

Executive Art Director: Mary Lester
Associate Art Director: Stephen Sauer

NETWORK WORLD LAB ALLIANCE

Joel Snyder, Opus One; John Bass, Centennial Networking Labs; Barry Nance, independent consultant; Thomas Henderson, ExtremeLabs; David Newman, Network Test; James Gaskin, Gaskin Computing Services; Craig Mathias, FarPoint Group

OFFICE MANAGEMENT

Editorial Operations Manager: Cheryl Crivello
Office Manager, Editorial: Pat Josefek

SUBSCRIPTIONS

Phone: (877) 701-2228
E-mail: nww@omeda.com
URL: www.subscribenww.com

REPRINTS

800-290-5460, ext 100
Email: networkworld@theygsgroup.com

IDG Enterprise

An IDG Communications Company

IDG ENTERPRISE

CEO: Mike Friedenberg
CMO/SVP, Group Publisher: Bob Melk
Chief Content Officer/SVP: John Gallant

The Linux desktop: Force or flop?

➔ **WHAT A THINLY** researched article for such a boisterous headline (Re: "Why Linux is a desktop flop"; page 20).

The cost of the computing platform is not the reason that Linux lags others on the desktop level. The ultimate answer and reason that Linux is not prominent on the desktop is marketing. There is no real marketing budget for Linux.

There is a big difference in the game environment, but that's gaming, and *Network World* is about business computing, isn't it? Linux succeeds in spite of itself where performance counts, in the server farm, and in dedicated platforms like POP registers, and the Android devices.

Thomas Honles SE PE

➔ **IN FIVE YEARS,** I think you'll be hard-pressed to find any desktop around "standard" companies. I believe in five years time, most staff in companies will be using tablet-like devices with apps connected to clouds.

Desktops are finished and so is Windows (thanks to its flop on handheld devices) and very few people are sad.

Oskar Limka

➔ **IF YOU DON'T** want to use GNU/Linux, don't use it. Also, who cares if the general public uses it or not?

Linux is self-sustaining. There are companies that make enviable incomes maintaining, supporting, and extending it. Young computer scientists cut their teeth developing it. Plenty of people use it, as do plenty of companies.

This is a dead controversy. The year of the Linux desktop came and went without anyone noticing. It's hard to say when it even was, actually, but it is in the fog of the past.

bbemken

➔ **LINUX FAILS ON** the desktop for three reasons.

1) Hardware compatibility. Newest Debian didn't pick up my monitor; no way new users want to run xrandr and deal

with custom modelines.

2) Shine and polish. Most of it's too 2D/1980s/flat graphically. I'm talking buttons, icons, window borders. The whole OS feels more immature.

3) Gaming. Sorry, but games drive newer machines. Games drive the upgrade route for hardware (thus, new installations).

I run a number of Linux-based servers and they're great, but more and more I'm finding that, for me: a) Windows for games; b) Linux for servers; c) Mac for everything else, including development.

Mike Oxford

Embracing 'enterprise technology'

➔ **AN INTERESTING READ** from an author who possesses an impressive CV. The difficulty I have with the content is the portrayal of "change" as a series of out-with-the-old-in-with-the-new disruptions (Re: "From IT to ET: Cloud, consumerization, and the next wave of IT transformation"; tinyurl.com/7eak568).

There is much "old" still in use. Many of the organizations for whom I've worked had "mainframes" in use that ran batch jobs at night while during the day allowing real-time updates of data by "knowledge workers."

What I have seen, and it is a problem, is the too frequent adoption of a new wizz-bang-it-will-fix-everything-that-is-wrong tool or technology that has not been evaluated for how well it will integrate with the existing technology. Furthermore, until and unless the users of these wonder-tools are fully trained, the full potential is unrealized.

RMichaelSmall

This is a dead controversy.
The year of the Linux desktop came and went without anyone noticing.

➔ **THANK YOU.** LIKE the mirror of Galadriel, the

article provides a very insightful look at what was, what is, and what may come to pass in the world of business technology. Anybody who is already savvy enough not to feel better informed after reading this will at least feel provoked into a high-quality debate.

Andrew Bergin

Peace of Mind

CenturyLink's managed services make updating or managing your network or equipment hassle-free.

With CenturyLink you'll find an honest and fair global communications partner providing IT solutions created to drive long-term growth. In fact, our recent acquisition of Savvis is just one more example of the level of our commitment to meeting our customers' needs and enabling corporate-wide innovation. Comforting, isn't it?

Data | Voice | Managed Services | Cloud

centurylink.com/business



CenturyLink
Business

Your link to what's next™

Where the Google Apps roam

AFTER SEVERAL YEARS and court battles, the U.S. Department of the Interior has picked Google Apps to provide cloud-based email and collaboration applications to about 90,000 staffers, choosing Google's services over Microsoft's Office 365. Google had sued the U.S. agency in 2010, claiming its requirements for the contract tilted the scales unfairly toward Microsoft. Google eventually dropped its lawsuit last September. The contract is worth about \$35 million over seven years, the Interior Department said. By replacing its current systems with Google Apps for Government, the agency expects to save up to \$500 million by 2020. tinyurl.com/cqcuaby



Harvard, MIT without the ivy

AN ONLINE education organization backed and funded by MIT and Harvard University will offer free Web-based course work. Admission will be open to anyone in the world and classes will start in the fall. Called edX, the nonprofit organization will initially offer Harvard and MIT courses and, over time, incorporate material from other universities. If you're hoping to earn a Harvard or MIT degree, edX isn't the way. Achievement in edX courses may earn a certificate of completion, but

it will not have either MIT or Harvard's name on it. Together the schools are investing \$60 million in the effort. tinyurl.com/8yq33vu

VMware's take on Google Drive, but with IT controls

VMWARE IS offering a private-cloud based platform for document sharing and device syncing that could rival Dropbox, Google Drive and Microsoft SkyDrive but give companies more control over their data. The product, called Project Octopus Beta, gives users access to documents via a native client or a Web client, and lets IT control provisioning, authentication and where data is stored. For example, IT departments can dictate what versions are kept, whether they are stored on fast or slow

storage, and what authentication methods are used to gain access. In addition, Octopus places control of the syncing within the corporate firewall on gear that's privately owned. tinyurl.com/cu2yns6

IE hangs on to its 50% share

MICROSOFT'S INTERNET Explorer gained usage share (for the third time this year) to stay above the 50% mark and remain the world's top browser, according to Web analytics firm Net Applications. IE gained three-tenths of a percentage point to average 54.1% in April. Since Jan. 1, IE has increased its usage share by 2.2 points for a 4% gain since the end of 2011. The turnaround has been IE's largest and longest since the browser began shedding share years ago to Firefox, then later, Google's Chrome. Chrome was the only browser besides IE to post positive numbers for the month, growing by three-tenths of a point to 18.9% and ending that browser's three-month decline. Mozilla's Firefox and Apple's Safari both lost share -- four-tenths and three-tenths of a point, respectively -- to end April at 20.2% and 4.8%. The Norwegian browser Opera remained flat at 1.6%. tinyurl.com/csvj426

Can Watson cure Cancer?

IBM'S JEOPARDY!-PLAYING supercomputer handily defeated two of the game show's strongest contestants, but can it beat cancer? The nation's biggest health insurer aims to find out.



IT VIDEO

Steve Jobs channels FDR

In 1984, Apple made a World War II-themed video to inspire its international sales force, and Steve Jobs appeared as FDR. tinyurl.com/cdq6gxt

Watson's ability to answer questions posed in natural language makes it a logical match for data-driven industries, says WellPoint CIO Andrew Lang. "We're dealing with a lot of unstructured data -- from medical evidence to patient information-- and that's where Watson excels." The first pilot, launched in December, involves eight WellPoint nurses using Watson-based systems to respond to physician procedure requests. The second pilot, launched this year with Cedars-Sinai hospital, tests Watson's ability to suggest treatment plans to oncologists. The pilot will start with breast cancer and have Watson parse medical literature, population data, and individual health records to deliver probability-based treatment options for doctors to evaluate. It's expected Watson will get better at evaluating and suggesting treatment plans. tinyurl.com/8xafaj8

Red Hat releases PaaS source code

RED HAT has released the source code for its OpenShift Platform-as-a-Service (PaaS) offering, enabling developers to run the platform on multiple cloud fabrics, including OpenStack. Red Hat first launched OpenShift a year ago as an alternative to VMware's Cloud Foundry, and until now, it has only been available as a service on

NEW! Cloud Servers
Pay as you Go
cloud.godaddy.com

DID YOU KNOW?

**GO DADDY DNS ANSWERS 10 BILLION
QUERIES DAILY & IS AVAILABLE OVER IPV6**

We take your site's availability seriously.

**GO DADDY MANAGES 25 PETABYTES
OF NETWORKED DATA STORAGE**

We take your data needs seriously.

**GO DADDY NETWORKS MOVE 75Gbps
OF CUSTOMER DATA GLOBALLY EVERY DAY**

We take your visitors seriously.

**GO DADDY BLOCKS 2.5 MILLION
ATTACKS TO OUR HOSTED SERVERS EVERY HOUR**

Our world-class Security Operations Center
takes security seriously, 24/7.

Serious about tech? So are we.

Call 480.463.8272 to learn more or visit tech.godaddy.com





JoeyBra: The new iPhone hideout

A PAIR of University of Washington students have begun promoting a bra they say can discreetly and comfortably be used to store iPhones, iPods, credit cards and more for women not carrying purses and who don't want to ask a companion to store the stuff in their pants pockets. JoeyBra (yes, the name comes from kangaroo moms carrying baby joeys in their pouch) has stretchy pockets built in on each side under the arm to store an item.

good

Skype a little too revealing?

SKYPE SAID it is investigating a new tool that collects a person's last known IP address, a potential privacy-compromising issue. Instructions posted on Pastebin explained how a person's IP address could be shown without adding the targeted user as a contact by looking at the person's general information and log files. Skype, which is owned by Microsoft, said in an e-mail statement that "this is an ongoing, industry-wide issue faced by all peer-to-peer software companies. We are committed to the safety and security of our customers and we are taking measures to help protect them."

bad

RIM wakes up to bad marketing idea

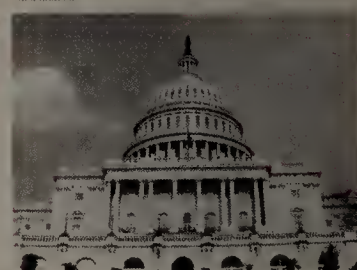
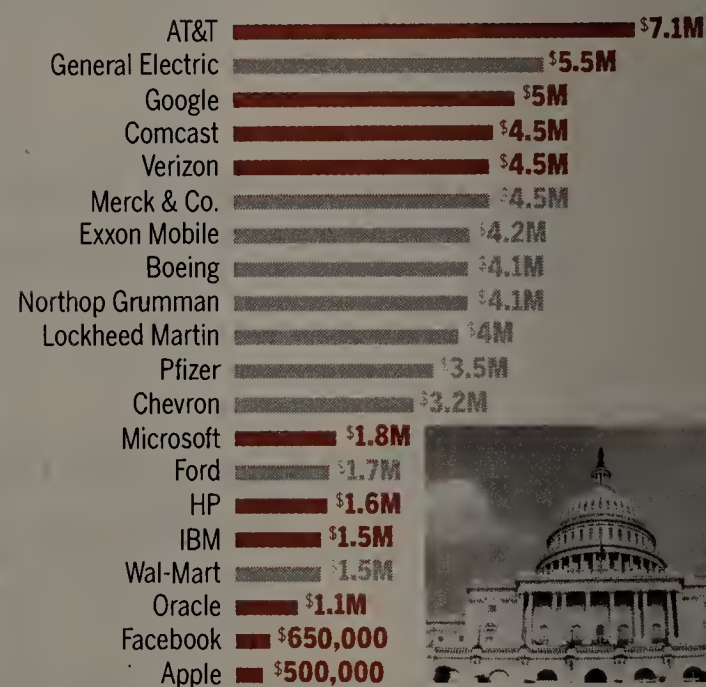
WHILE WE'RE sure nobody at Research in Motion thought a host of black-clad protesters shouting "wake up!" outside an Australian Apple Store would turn the company around, they probably didn't think it could backfire as did. The stunt was initially ascribed to Samsung, which is planning to release a new Galaxy smartphone—until an Aussie Mac blog noticed that some code on the "countdown" page advertised by the "wake up" campaign may have come from RIM. RIM had to then say, "um, actually, it was us." This undercuts the point of "guerrilla" marketing, just as RIM was gearing up to promote its BlackBerry 10 OS.



ugly

The best government money can buy

AT&T SPENT nearly \$7.1 million on lobbying the U.S. Congress and President Barack Obama's administration in the first quarter of 2012, making it the leading corporate spender on lobbying, with Google, Comcast and Verizon Communications also making the top five. Google, facing antitrust scrutiny in Washington, D.C., spent more than \$5 million on lobbying in the quarter, trailing only AT&T and General Electric. Ranking No. 4 was Comcast, at \$4.6 million. Verizon was No. 5, at \$4.5 million, spending more than pharmaceutical powerhouse Merck, at just under \$4.5 million, oil giant Exxon Mobile, at \$4.2 million, and major government contractors Boeing, Northrop Grumman and Lockheed Martin. Lobbying expenses include salaries of lobbyists, media campaigns, research and other spending focused on influencing the outcome of legislation. tinyurl.com/c7bld42



Amazon's EC2 compute cloud. With the release of the source code, developers can now run OpenShift on their laptops, a server behind their firewall, or in their own data center. They can also integrate their own middleware, write their own applications and build their own cloud stack using an open source infrastructure-as-a-service (IaaS) codebase. "The cloud in general, and IaaS and PaaS implementations specifically, should not be vehicles that promote vendor lock-in, nor should they be under the control or 'guidance' of vendors," said Red Hat's senior consulting software engineer Jim Jagielski in a blog post. "For the cloud to remain open and vibrant, implementations should be

truly open, not only in license, but in governance." tinyurl.com/cs2bds8

HP ousts Apple from top "PC" slot

APPLE LOST its position as the No.1 manufacturer of personal computers in the first quarter of this year, according to CanaIyst research, which counts tablets as personal computers. In the last quarter of 2011, sales of the iPad had bumped Apple into the top slot, but in the first quarter of 2012 HP sold 40,000 more PCs than Apple's 15.8 million total units (4 million of which were Macs and 11.8 million of which were iPads). tinyurl.com/cklskck



I.T. WORKS BETTER TOGETHER.



With HP Converged Infrastructure solutions powered by Intel® Xeon® processors, you can spend over 70% of your time and IT budget on innovation rather than maintenance.*

HP Converged Infrastructure integrates servers, storage, networking, security, and management software into turnkey systems that accelerate IT, reduce application provisioning time by 75%, and get you ready for the cloud.*

convergedinfrastructure.com



*Substantiation: HP white paper, *Measuring the Business Value of Converged Infrastructure in the Data Center*, October 2011.
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.
Intel, the Intel logo, Xeon, and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries.

Zynga infrastructure CTO: Making hardware cool again

Allan Leinwand is an infrastructure guy. He's CTO for infrastructure at Zynga, which during the past few years has built the zCloud, which powers some of the most popular social games today. It works by combining the capacity of Amazon Web Service's public cloud with the company's custom-built private cloud. In talking with Network World Staff Writer Brandon Butler, Leinwand says Zynga's evolution from relying on the public cloud to building a custom-made hybrid cloud, is one he hopes other enterprises can learn from. Leinwand is also excited because finally, he says, infrastructure is cool again. During the dot-com bubble all the talk was all about the Web, networking and storage. Now, with the increasing popularity of the cloud, infrastructure is once again front and center. This year Leinwand will be one of the keynote speakers at Interop where he will discuss zCloud's evolution and the state of cloud computing.

Isn't the idea of a public cloud about outsourcing infrastructure, and getting it off the minds of IT executives?

There's a perception that public clouds will lead to the outsourcing of infrastructure and IT. But I actually think a hybrid model, which means owning the base infrastructure and renting the spike capacity, is really the mantra of the future. A hybrid model that uses both a public and a private cloud is really the way most enterprises will build their clouds.

When I think of cloud, I think of a hybrid cloud environment where you have infrastructure that is owned and maintained by the user and is optimized for your business. Then

there is a public cloud component, which is a more generic, homogeneous infrastructure that you can tap into and scale with.

Using those two in unison is really going to be the model going forward.

One concern a lot of enterprises might have in building a hybrid cloud model is the interoperability between the public and private clouds. How did you approach that issue when building zCloud?

When we built zCloud hybrid we made sure that we had compute that could move seamlessly between the public and the private

clouds. That meant having common hypervisor equipment in the public and the private clouds. We made virtual machine images that could be used on both the public and the private cloud and we spent time working with vendors making sure that workloads could be moved from the public to the private clouds using a single dashboard. We knew that if we used a model that people hadn't seen before, it would be hard. So, we made the private portion of zCloud look and feel exactly like the public cloud. We don't differentiate between the public and the private clouds in terms of how we orchestrate, automate and deploy.

Why wasn't just using a public cloud right for Zynga?

Our goal with zCloud is to power games that are social, acceptable and fun. On the accessibility side, we wanted to make sure our games are available anywhere on any device, so we wanted control over our infrastructure to do that. We also wanted to be able to scale flexible infrastructure in an incredibly fast way that was tuned for our business. And we wanted to have a little bit more control over the infrastructure itself so we could match it to the exact needs of the business. We wanted to be able to tweak memory and hardware configurations to optimize performance for our needs. When we did that we got a very nice bump in performance. And finally, we made sure that we have multiple layers of redundancy up and down the chain. That means redundancy at the server level, the power level, the network level as well as storage and DNS all having redundancy.

This is not to say that we don't like the public cloud. We still use the public cloud. But I call Amazon a four-door sedan, and I use that

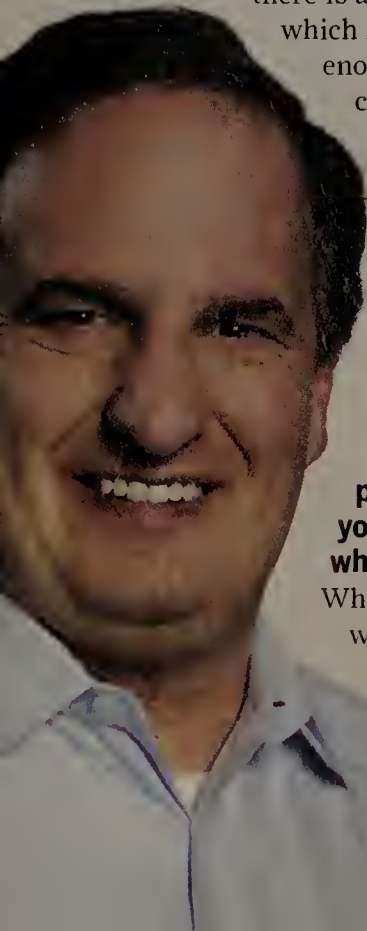
term in the nicest way. It's a generic car that is a useful utility for a number of functions. But for zCloud, we really wanted a car that was built for driving social games. So, we spent a lot of time monitoring game codes and tuning our system for the workloads we actually had. We found that we got a 66% reduction in servers when we ran some functions in the private cloud. In some cases, for every three servers it took to run an application in the public cloud, we did with one in the private cloud. That's not because Amazon's servers are worse than ours, we just built our servers, our networks, storage and compute infrastructure in a way that really matches how social games work. We really took a deep look at how our applications were running and built our cloud to those needs. That's one of the lessons I hope to share at Interop: Really know your applications, then you'll be able to learn what infrastructure is best suited for [them].

How do you make the determination of which applications run in the public cloud and which run in the private?

Well it comes down to knowing your applications and their workloads. If you have a particular demand for CPU, storage and network, the public cloud in many ways can satisfy those needs. There are some things that run just fine in the public cloud. If you build infrastructure with particular performances in mind, it's easier to do that in a private cloud and use the public cloud as an extension of the private cloud.

When you took a deep look into how your applications ran, what did you learn and how did that influence the infrastructure that you built?

One thing that's interesting about Zynga is that the games are software stacks, but those stacks also consume lots of services that are common among multiple games. So, for example, we have services that post events out to the social networks, and we have services that help you make payments, while others track leaderboards and do analytics. By watching those communication flows and understanding which services use local caches and which need access to a disc, we were able to build zCloud with all that in mind. People often ask me: "Allan, you were able to save 66% of your servers, what's the silver bullet?" Well, there was no silver bullet. It was a lot of little things that came together from studying our operations that manifested itself into a very nice configuration that we now call zCloud.





► **Interop, from page 1**

IBM will demo a high-performance SDN using OpenFlow, which is a protocol and API that enables SDN. IBM will also be part of the Interop OpenFlow Lab which will include Broadcom, Brocade, Extreme, HP, NEC and others showing off the SDN technology.

Hailed by proponents as the biggest transformation of networking in decades, SDN promises to make the physical infrastructure irrelevant to the actual behavior of the traffic by enabling software programmability of flows and additional features.

Another big player to watch in the evolving SDN market is Cisco, whose hardware and software is omnipresent in enterprise, data center and service provider networks. Cisco CTO Padmasree Warrior kicks off Tuesday morning's Expo with a keynote address, and while her speech is slated to discuss three macro industry trends — mobility, cloud and video — Cisco has been working in recent months on its programmability strategy, as it calls its response to SDN.

At the company's recent business partner conference in April, Cisco CEO John Chambers confirmed that the company is funding and plans to absorb Insieme, a startup developing an SDN system.

At the conference, Warrior told *Network World*, "Clearly we understand the implication of what is good about [SDN] and what are the things we need to improve," Warrior said.

From that conference *Network World's* Jim Duffy wrote: "The single most visible aspect of Cisco's programmability strategy — the company seems careful not to label it as an SDN initiative — is Insieme, the Cisco-funded startup building what is believed to be a programmable switch line supporting OpenStack and distributed data storage. Cisco initially invested \$100 million in Insieme, with the right to purchase the remaining interests of the company for up to \$750 million."

Interop also features a number of sessions focused on SDN, including a Monday afternoon workshop titled "How will software defined networks and OpenFlow impact

enterprise networks?" and on Wednesday at 2 p.m. the session "OpenFlow and software defined networks: What are they and why do you care?" will be held. Also, cloud networking company Lyatiss will demonstrate CloudWeaver, which is an SDN-based offering that supports scalable connections to cloud applications.

using on-site virtualized hardware for the base-level needs of an enterprise, and using a public cloud as a way to scale for unexpected spikes in IT needs, is the approach he believes will dominate into the future. Other keynotes on Tuesday include leading executives from Avaya, Dell and Google.

On Wednesday, Steve Herrod, CTO and senior vice president for R&D at VMware, will keynote the morning session, along with a panel discussion from leading cloud thinkers including John Engates, CTO of Rackspace, and Ellen Rubin, vice president of cloud products for Terremark, a Verizon company. Mobile computing is set to be a hot topic throughout the show as 14 sessions during the three days of conferences are dedicated to the topic — the most of the nine conference tracks.

For the early birds getting to the show, Sunday and Monday, May 6 and 7, will feature two-day sessions on enterprise cloud computing and principles of effective IT management. Security is the second hottest topic at the show, while topics such as IPv6, social media in the enterprise and desktop virtualization are also on the docket.

Meanwhile, organizers have spent the past few weeks putting the finishing touches on the event, including setting up the network that will power Internet connectivity at the show.

"InteropNet is probably the world's largest temporary network," says Steve Shalita, vice president of marketing for NetScout, which is one of more than a dozen companies lending support for InteropNet, the engine that powers the high-speed network for exhibitors and conference attendees.

CenturyLink, which is providing the bandwidth, uses

dedicated data centers to supply Internet connectivity, which it then delivers to the venue via private-line Ethernet, says Senior Product Manager Michael McAfee. "We have the data center services, we have 9GB of Internet connectivity out of those data centers," he says. Two-thirds of the bandwidth provided is IPv4 while the remainder is IPv6. ■

Network World's Jim Duffy and Jon Gold contributed to this report.



[TOUGH QUESTION #21]

WHO HAS THE HIGHEST OVERALL PROTECTION NEXT-GEN FIREWALL RECOMMENDED BY NSS LABS?



According to NSS Labs, the global leader in independent security product testing, "For high-end multi-gigabit environments looking to upgrade defenses from their current firewall to a next-generation firewall, the advanced architecture of the SonicWALL® SuperMassive™ E10800 running SonicOS 6.0 provides an extremely high level of protection and performance." Visit sonicwall.com/nss

SONICWALL
SECURES THE
ENTERPRISE.



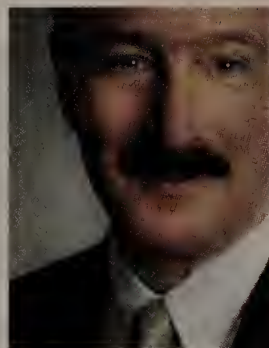
SONICWALL

2012 Next-Generation Firewall Security Value Map provided by NSS Labs™ — a third party, global leader in independent security product testing and certification (nsslabs.com).
©2012 SonicWALL, Inc. SonicWALL and the SonicWALL logo are registered trademarks of SonicWALL, Inc.

Beyond SDN, another major area of discussion among the keynote speakers is expected to be cloud computing. Speaking during Tuesday morning's keynote is Allan Leinwand, CTO for Infrastructure at Zynga, which during the past few years has migrated away from using market-leading public cloud provider Amazon Web Services and has instead built zCloud, which powers the online games the company makes (see interview, page 12). Leinwand says this hybrid approach of

Clean bill of health for e-medical records

With the U.S. Supreme Court now debating the fate of the so-called “Obamacare” legislation passed in 2010, healthcare has been much in the news of late — and not much of the news about healthcare is very good. That is, unless you’re talking to Philip Fasano, executive vice president and CIO of Kaiser Permanente, the giant Oakland, Calif.-based integrated health system. Fasano, whose IT organization has delivered on a multibillion-dollar electronic medical records initiative, believes that healthcare’s greatest days are ahead thanks to the rapid infusion of technology. In fact, Fasano thinks — dare we say it — that your healthcare provider should be in the business of delighting you.



come in to see us in our care delivery settings. The technology supports every aspect of their care and every aspect of their insurance needs on the health plan side of the business. Our electronic medical records system is the largest implementation in the private sector anywhere in the world.

I also want to touch on the scope of your role because you have a unique set of responsibilities that go well beyond just IT.

I am one of three executive vice presidents at Kaiser Permanente. My colleagues and I have responsibility on what we call a National Leadership Team and the Operational Leadership Group, which [oversees] day-to-day operations of the businesses of Kaiser Permanente. The National Leadership Team is the equivalent in a public company of an executive committee. We work with the CEO on everything from strategy and strategic development of the business, to quality and service and affordability around all of the programs we provide.

We work in partnership with another leadership group we call our Kaiser Permanente Partner Group, effectively the medical group leaders and our health plan, health hospital operations leaders, all partner together on that group. We go across all of our medical groups, all of our care capabilities, and all of our health plan operations, working together for the benefit of all of our members. We also have an additional goal, and that’s to work for the benefit of the communities we serve, because we are not-for-profit and our not-for-profit capabilities are quite significant. We work with community outreach and many community-based programs to support people who have challenges getting healthcare access, due to financial or other reasons.

What spawned that significant bet on the medical records initiative? You have talked about your CEO’s goal to turn healthcare on its ear. What does that mean?

I wasn’t here when our CEO came to the company, but I’ve been here with him for the past five years, and I know that when he came to the organization one of the things that he brought with him was that he understood the value of information technology. In fact, he had implemented, on a smaller scale, electronic medical records in other organizations

In this latest installment of our CIO Interview Series, Fasano spoke with IDG Enterprise Chief Content Officer John Gallant about how the electronic records “bet” has paid off for Kaiser Permanente and its roughly 9 million customers and patients, and how social and mobile technologies will advance the effort. He offers hard-won advice on making big tech projects successful and talks about what it means for CIOs to be the “CEO” of their organizations. (See tinyurl.com/79j2xr6 for a full version of this interview.)

I want to give readers a clear understanding of the size and scope of Kaiser Permanente, so that people have a sense of just how big a responsibility IT has not only in supporting the company but also helping to drive innovation.

I’ll give you that perspective from a couple of points. We’re approximately a \$50 billion by revenue institution, so if we were a public company we’d probably be in the Fortune 50. We’re not a public company. We’re not-for-profit and have a particular mission around that. The organization covers all aspects of the healthcare industry. We’re larger than the health systems of 140 countries. So if you think of us as a country health system, we have primary care physicians, we have specialists and specialties, we have all the facilities that would be necessary to operate such a system, including medical buildings that are quite comprehensive. We have hospitals, 36 of them across the program, mostly in California and the northwest part of the United States, as well as out in Hawaii.

Though we don’t operate in all 50 states, we do operate from the mid-Atlantic, on the East Coast, in Georgia, all the way out to Hawaii. We are a very large part of California healthcare, treating almost half the state’s population. About 9 million Americans get their

healthcare from Kaiser Permanente every day, and they certainly expect a lot of us and we expect a lot of ourselves in terms of the capabilities and services we have to offer them. We’re also a health insurance company. We’re a health plan, although we’re an integrated health plan. Our health plan and our care delivery organizations are integrated in the sense that they work very closely together to deliver the high-quality care, as well as the products and services people need to ensure their health.

Our organization has over 200,000 people in it. Our IT organization has a little less than 6,000 employees as well as additional support people that would actually bring that number somewhat higher, probably a couple thousand higher than that. It’s a large group of people who are focused on delivering what we call life-critical systems, and having all aspects of technology in place to support all our care delivery operations.

All of the systems to support our health plan and health insurance operations are part of my responsibilities, as well as the infrastructure to support a business of delivering life-critical capabilities to its members, either over the Internet when our members access our website KP.org, or via a mobile phone, via mobile apps, or if it’s when they

Microsoft

When managing
software updates
eats up your lunch
hour, you're ready.

Microsoft Office 365.
It all works together.

You're ready for a comprehensive suite of integrated tools that updates automatically. Collaborate in the cloud with Office, Exchange, SharePoint, and Lync videoconferencing*. **Starting as low as \$8 per user per month.**

Begin your free trial now
at Microsoft.com/office365



Scan tag with a smart-
phone to learn about
the Office 365 free trial.
Download the free
scanner app at
<http://gettag.mobi>

*Camera required.



Microsoft

Office 365

and, as a consequence, came with an expectation that having those tools was foundational to improvements in healthcare quality, healthcare affordability. And, frankly, levels of service to patients and physicians that were just beyond anything that was occurring broadly in the United States.

Bringing that foundation with him, he decided to effectively bet the future of the institution — because of the size, scope and complexity of the project — on implementing an electronic medical record system end-to-end. That meant in every one of our operations, effectively having every patient in this institution be on our electronic medical record system so that every care provider, every physician, every specialist had complete access to the entire medical record every time they treated that patient.

We started to say that patients should look at having an electronic medical record as a right not a privilege in this country. In our organization, it's become a right. Every patient at Kaiser Permanente now has that system. It allowed us to build on top of many preventive care capabilities, in the form of advanced analytics that look through your medical record for conditions or issues that could be as simple as you haven't renewed your prescription to noticing that your physician was attempting to prescribe a particular pharmaceutical that you have an allergy to, which gets noted to avoid having that happen again going forward.

The capability is extensive, it's widespread, and it's very significant. He was betting \$4 billion of this company's cash flow on the future implementation of a system that he was hopeful we'd be able to get done, but of course, wasn't assured. I can tell you the bet has paid off in an enormous way and it's given us capabilities that should be expected of every healthcare system.

What was the role of the IT organization in helping shape and bring that vision to life?

Putting electronic medical record systems into an institution meant the IT organization was going to have a very large percentage of the responsibility. What I can tell you, though, is that any IT organization that believes they can do it alone is just destined to fail. At Kaiser Permanente, we did this as a team. Our care delivery leaders and our physicians, all of our clinicians were deeply involved in the development of this program and worked with IT extraordinarily closely, worked with our other business operators very closely, and as a consequence we were able to put together a capability that goes across the organization and is widely well received.

Any large-scale implementation has post-implementation challenges. People

start to work with it and find its limitations pretty quickly. If we didn't have everyone completely involved and participating very actively — both buying into and making the vision their own — we would have been very challenged post-implementation. You really have to help people train on the system, learn some new capabilities that they might not have known existed in the system, so that they become not only proficient, but operate at an expert level.

Physicians go from encounter to encounter to encounter all day long, and for them the system has to just be easy to use and simple for them to document into, or it becomes an encumbrance. In our case, some of our physicians [would help] their peers learn the path forward. It was truly remarkable how each person helped the other become proficient in this particular capability.

One of the raps on IT departments is how often it's perceived that they fail at significant projects. This is about as big a project as you can get. What were the secrets for success here?

I have many, many other large programs underway at Kaiser Permanente currently, and the fact of the matter is with large programs you're going to have some to and fro with project plans, timelines and cost. It's just the reality. You don't know at the beginning what you don't know. But in order to make them a success, you really have to decide early on that it's going to be a strong, deep partnership with experts involved in every step of the initiative. Not only involved, but full-time involvement, which means in many cases they have to give up their day jobs and focus on the execution and implementation of a transformational initiative.

Large systems initiatives are transformational in nature. This certainly was. Everything from how you work day-to-day, your operational workflow, has to be considered and analyzed and determined what it will be going forward so you can train for that, to the need to implement more servers in the back room to support this and making sure there's high availability.

Something you may not have considered on day one, but something you have to spend money on day two, as you've implemented the program and realized that high availability was a dependence for this particular system. Oftentimes people fail to see at the onset of the program that they really needed those capabilities and they start to spend on those capabilities once they determine they're necessary, often without bringing forward the additional business case, without recognition at the senior-most levels that these are strategic additional investments that are necessary

to operate the business post-implementation. When people find out and deal with the back end, the project is now two times what we intended it to cost, the project took one and a half times or two times the time, it's much more complex and very challenged. Often, very large projects actually get canceled when they start to experience those difficulties.

If you go into a large project as a company leader and don't expect to spend more than you've initially budgeted, you're probably not exhibiting great leadership and foresight in terms of planning. The reality is you go into these projects knowing probably about between 30% and 60% of what you need to know and then you find out the rest of it as you're going because large projects are so complex and things are subject to change.

Operating procedures that most companies experience for 10, 20, 30 years are now coming under substantial amounts of change and pressure, which requires the entire company to go through a transformation that, in many cases, they didn't anticipate the scale and scope of. That's why these programs often fail. CFOs will pull the plug because the cost of them is getting extraordinarily high. But the other reasons they tend to fail is that organizations haven't committed their absolute best people to them, and even when they pick their best people they fail to recognize that those people may not have change leadership, transformational leadership, and the scale and scope of an initiative like this in their background. It's their first rodeo, therefore they're going to go through a learning curve. Learning this at scale costs you a lot of money.

What are the tangible results of the medical records initiative to date?

What is it enabling the company to do that, had you not made this investment and this transformation, you wouldn't be able to do today?

Our medical group has an extraordinary passion for being the best, as measured by their peers and all the quality metrics out there. They work really hard to make sure that this organization both strives for and achieves at the best levels. This system enhanced their ability to accomplish those goals. It's given them the information, the technology, the additional analytic support to really focus on people with chronic conditions, create outcomes for those people that are extraordinarily different than the communities that we operate in and what other physicians might achieve. Those outcomes are substantially better, sometimes twice as good, sometimes even more than twice as good as the community can achieve without these types of capabilities. ■

Always partnering

Managed Recovery Program

Partnering with your team to develop, implement, operate and maintain your recovery program. Offering contractually guaranteed uptime levels, all backed up by decades of experience and proven availability expertise. Always.

Managed IT Services. Recovery. Cloud.
Find out more at www.sungardas.com

SUNGARD®
Availability Services

Why Linux is a desktop flop

BY MARIA KOROLOV

IT'S FREE, easier to use than ever, IT staffers know it and love it, and it has fewer viruses and Trojans than Windows.

It's already ubiquitous on the server side. Plus, there are now alternatives to the most popular software packages out there — again, for free — and new software releases often have Web-based interfaces, making operating systems irrelevant.

So, why hasn't Linux on the desktop taken off?

Especially since Linux — in the form of the Android operating system — dominates the mobile market, with a 50.9% market share at the end of 2011, according to Gartner numbers released in February, up from 30.5% market share at the end of 2010.

On the server side, Linux is also doing well, especially with high-performance computing and cloud infrastructure deployments, according to IDC, with Linux servers now accounting for more than 18% of all server revenues.

But on the desktop, Linux's numbers barely register. Gartner predicts that Linux penetration on the desktop will remain below 2% for the next five years.

So, what's the problem? It's not just corporate inertia — companies are quick to move when there's money to be saved. But when it comes to desktop Linux, the cost savings turn out to be problematic, there are management issues, and compatibility remains an issue.

Cost

Let's get the money question out of the way first. Yes, Linux is free, and so is the open source software that often comes with it — OpenOffice, the GIMP photo editing software, the Thunderbird email client.

But, as the old saying goes, it's "free as in puppy, not free as in beer."

First, Windows itself isn't that expensive when you get it bundled in with new desktops and laptops. The cost savings to run Linux on the same hardware is minor.

For example, the Dell Latitude 2120 with Windows 7 Home Premium is \$494, while a similarly loaded Ubuntu Latitude 2120 is \$434 — a savings of just \$60.

In addition, the free versions of Linux are only supported with free fixes for about a year, says Michael Silver, an analyst with Stamford, Conn.-based Gartner.

"You have to switch to the new version of Linux every year," he says. "Microsoft supports each version of Windows for 10 years

— I don't have to pay any more money, and I still get security fixes. Even vendors that do offer extended security fixes for Linux, like Novell or Red Hat, they're going to charge every year for the privilege."

So companies wind up paying either for the time it takes to upgrade all the Linux machines, or for the extended support. "The cost ends up approaching Windows — if not surpassing it — fairly quickly," Silver says.

The idea that Linux is free and companies can save a lot of money by switching is a myth, he adds, one of many myths surrounding Linux deployment. "This has been a typical understanding, but a lot of organizations that have explored that have found that there's more to it," he says.

As a result, Gartner hasn't been seeing much interest in switching to Linux on the desktop, he says. "We get a lot more questions about switching to Macs than switching to Linux at this point, even though Macs are more expensive."

There has been more interest in open source software and operating systems in Europe and Latin America, Silver says. "But even that has been tapering off."

Compatibility

But the single biggest disadvantage Linux has on the desktop is in applications, says Patrick Gray, president of business strategy consultancy Prevoyance Group.

"Traditionally, Linux has been a bit more difficult to install, use and manage, but much of that has been assuaged with variants like Ubuntu," he says. "But despite narrowing the usability gap, Linux still lacks many commercial-grade applications."

Where substitutes are available, he adds, most are not supported, or don't have the full feature sets of the commercial variants.

Plus, most professionals tend to be familiar with the leading commercial software products for the work that they do — the open source alternatives may require additional training, or cause productivity problems.

"While Linux is free, the cost of a large company to train users, and support these applications, will likely offset the software licensing expense [of Windows]," Gray says.

"The reason isn't security, usability or any other technology shortcoming," confirms Mark Hinkle, director of the cloud computing community at Citrix Systems. "The inhibitor for adoption is applications."



Under Linux, he says, users can check their email, browse the Web and use an office suite. "The problem is that things like custom billing apps, SAP, desktop productivity apps from Adobe and industry-specific apps are developed solely for the Windows desktop," he says.

Many applications are already moving to a cloud-based or browser-based delivery model, he adds. Those apps can run on any operating system with a browser, or on any smart mobile device. At that point, companies can start looking at Linux more seriously.

"Until then, Linux adoption on the desktop will be stifled."

According to Gartner's Silver, a typical organization will have one application for every 10 users, and, today, about half of those applications require the Windows operating system.

"That percentage has been declining, but still, it's pretty high," Silver says. "So if I have 10,000 users, and 1,000 applications, 500 of those applications will need Windows to run."

One intermediary solution, says Citrix's Hinkle, is to run a virtualized version of Windows on top of Linux, such as with Citrix XenClient or VMware, or use remote desktops such as Citrix XenDesktop, for those users who need specific Windows applications. "For example, the Google Chrome netbooks complemented with apps re-displayed from a Citrix XenApp installation could be a very interesting solution for a number of users."

Virtual desktops can be used to provide access to legacy apps for users of smart mobile devices, as well.

Making it work

Despite these negatives, there are companies out there using Linux on employee desktops.

One, for example, is a small veterinary clinic, the Chester County Cat Hospital, located just outside Philadelphia, with 10 employees.

"We took over the business last June and last July is when I moved everything over to

ONLY 1&1 OFFERS YOU THE RELIABILITY OF DUAL HOSTING.



What is Dual Hosting? Your website hosted across multiple servers in 2 different data centers, in 2 different geographic locations.

Dual Hosting, maximum reliability.

NOW 50% OFF

\$3.49

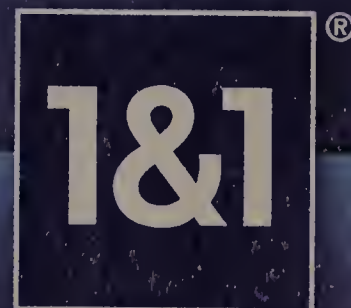
PER MONTH*

1&1 UNLIMITED PACKAGE

- FREE DOMAIN With Private Registration
- UNLIMITED Traffic
- UNLIMITED Web Space
- UNLIMITED Click & Build Installs
- GEOREDUNDANT DUAL HOSTING
- And More!



www.1and1.com



* Offer valid for limited time only. 12 month minimum contract term applies. After first year standard price applies. 3 month pre-paid billing cycle. Visit www.1and1.com for billing information and full promotional offer details. Program and pricing specifications and availability subject to change without notice. 1&1 and 1&1 logo are trademarks of 1&1 Internet, all other trademarks are the property of their respective owners. © 2012 1&1 Internet. All rights reserved.

Linux," says financial manager Paul Stadler, who bought the business with his wife, the clinic's veterinarian.

"Linux was my comfort zone, and I knew I could get it to do what I wanted it to," Stadler says.

He uses an open source practice management software system, which employees access via a browser.

"They don't seem to have noticed that it's on Linux," he says.

The previous owners used a Windows-based practice management system, and inactive patients weren't ported over to the new platform. Stadler runs a Windows emulator if he needs to pull it up, he says.

In addition, there were some Office documents and spreadsheets. "Libre Office handled them seamlessly," Stadler says. "I don't think they [the former owners] knew what a macro was, so we didn't have to deal with that at all."

Employees have been using Libre Office without a problem, he adds, for simple tasks such as writing a letter to someone or moving some numbers around in an inventory tracking spreadsheet.

"I would say that, since July, they've probably come to me three times with a question on how to do something in that software," he says. "The less savvy your employees are, the less it matters — everything they do is extremely simple."

Overall, Stadler says, he's probably saved around \$10,000 a year in software costs, mostly as a result of the practice management software.

But he adds that he would have seen the same savings if he had stuck with Windows, since all the software can run on that platform, as well.

Meanwhile, drivers have sometimes been a hassle, he says. "The open source community packages them up for you, but at a pretty severe lag," he says. "When I bought new printers, I had to download the drivers. I got them to work, but you have to be technologically literate to do it. It was actually a challenge to get those drivers working."

Los Angeles-based InMotion Hosting is on the opposite end of the spectrum from the Chester County Cat Hospital when it comes to the technical skills of its employees.

The company's server farms are Linux-based, and many employees are comfortable working with Linux. As a result, about 25% run Linux on their desktops, says CEO Todd Robinson. Of the rest, 65% use Windows and the rest have Macs, he adds.

In addition to problems with finding software to run on Linux, and training staffers who have grown up using Windows or Macs,

Wait, IS desktop Linux a flop? Readers weigh in

While one could be forgiven for expecting a flame war in the comments on an article entitled "Why Linux is a desktop flop," the online discussion that followed its publication was, in the main, thought-provoking and respectful.

An extensive debate on Slashdot was particularly enlightening. One user said the opportunity for widespread Linux adoption on the desktop had come and gone.

"The great opportunity for Linux on the desktop was a decade ago. Back when Windows 95 sucked, Windows XP was late, and Windows 2000 cost several hundred dollars. That's when it could have happened. It didn't," Animats wrote.

Several others cited Microsoft Office as a key factor in keeping Linux desktop adoption low. Given the near-total dominance of that suite of programs in the productivity sector, it's unlikely that any user with more than a casual need for Word or PowerPoint will opt for the open-source alternatives.

Nevertheless, others pointed out that Linux's profile could change radically overnight. Citing the case of guitar string maker Ernie Ball — which was raided and audited by the Business Software Alliance in 2000 and subsequently switched to an all-open source model in protest — one user said that it's startlingly simple to transition a business to Linux.

"Microsoft persists because their customers don't have a compelling reason to switch. But given a reason, switching to Linux is no big deal. At any point in time, most of the world is 6 months from Linux, and Microsoft is 6 months from oblivion," wrote swm.

Two other refrains, however, were commonly heard. The first is that Microsoft's ability to offer a single, unified Windows desktop ecosystem gives it a huge advantage over Linux, given the fact that there are hundreds of different distros out there, all with various upsides and downsides. The second, related point is that the development communities for each of those distros make up a fractious, Balkanized and often highly uncivil patchwork of a larger whole.

Still, it may simply be a lack of awareness holding Linux back.

"Most people do not know there is an alternative to windows or that it's as good as windows," wrote Citron, adding, "Android is a good example of what can happen when people are exposed to an alternative OS. It's now the number 1 smart phone OS and Windows phone is more or less a flop."

— Jon Gold

"THE GREAT OPPORTUNITY FOR LINUX ON THE DESKTOP WAS A DECADE AGO."

BACK WHEN WINDOWS 95 SUCKED, WINDOWS XP WAS LATE, AND WINDOWS 2000 COST SEVERAL HUNDRED DOLLARS."

Robinson says Linux desktops also have a management problem.

"It's such a flexible environment that there's a lot of freedom to do things, even things you shouldn't do," he says. "A typical thing in a Windows setting is to establish some usage policies, and set up some limitations on the systems to keep them stable. Linux doesn't have those types of standards out of the box."

Instead, companies looking to centrally manage Linux desktops have to create those types of policies and limitations, he says. "Windows is set up that way."

Other large-scale examples of Linux deployments tend to fall into one of these two extremes. Either employees use their

machines in very limited ways — such as bank tellers, for example, or store clerks — or in very sophisticated ways where they often write their own applications and need the power and control that Linux offers.

In the big middle ground, however, the applications rule, and companies choose the platforms that give employees the software they need to do their jobs. That means Windows for general business applications, and Macs for specialized graphics work. ■

Korolov is a freelance business and technology writer in Massachusetts. She can be reached at maria@tromblyinternational.com.

VIEWPOINT

**Katsutoshi Nihei**

SENIOR MANAGER, SOFTWARE
PROCESS AND INNOVATION,
NEC CORPORATION

Nihei is responsible for the software development environment at NEC. Since 2009 he has worked to improve the quality and productivity of in-house software, and has now implemented cloud services running in the software factory at NEC.

FOR MORE INFORMATION:

please download the white paper at:
www.networkworld.com/whitepapers/nec.

NEC**NETWORKWORLD**
Custom Solutions Group

Managing Development in the Cloud

Keeping a cloud software development environment operating around the clock is a major challenge. Katsutoshi Nihei has that responsibility for all of NEC Corporation, a \$35 Billion technology leader, as Senior Manager of its Software Process Innovation and Standardization Division. His operation runs NEC's "Software Factory", a companywide platform for all development activities, which is charged with standardizing and accelerating software development to bring new applications to customers faster and optimize costs. He recently discussed how he implemented NEC's Programmable-Flow Networking to manage a virtualized development environment for use across the company.

What are the challenges of hosting a cloud-based development environment?

Software Factory operates one data center in East Japan and one in West Japan to provide a common development environment across all NEC operations. Operating a cloud software development environment 24x7 requires high availability and high performance. Virtualization enables optimal server resource utilization and high availability, but it can take considerable effort to change the network when virtual servers are added, changed or removed. Without Software Defined Networking and Programmable-Flow, you would have to do this manually, it is time consuming to change router configurations and IP addresses and can lead to setup errors. It's also expensive to operate redundant hardware in multiple locations.

How has the adoption of Programmable-Flow impacted the Software Factory?

ProgrammableFlow delivers a network that can adapt to expansion and changes of virtual servers quickly and easily. We no longer need to change the assignment

of IP addresses during relocation of a VM, which increases operational flexibility. Also, previously we operated duplicate standby equipment in each data center for maintenance purposes, but now we keep standby equipment in only one of the data centers, saving tens of millions of dollars in hardware and operational costs.

What was the impact on your ability to manage and monitor network resources?

As network configurations become increasingly complex, it can be difficult to get an overview of where and how data communication is flowing. The ProgrammableFlow GUI clearly displays the physical and virtual network topology and communication flow, making for more efficient management.

Currently, we are centrally managing both East Japan's and West Japan's network from our headquarters in Tokyo. Before this implementation, the East Japan data center was close to its computational limit, but now we can provide it with access to several of West Japan's virtual machines.

What does this mean for your developers?

We're able to prepare multiple logical virtual tenant networks and create a secure development environment sharing the same physical network, without having to manually prepare a physical server environment for each tenant. If we had to set up separate physical servers to house an application server, a web server and database server in order to meet developer needs, it would make it very difficult for us to actually achieve our goals of improving the quality, cost and delivery of NEC solutions.

How will this impact future plans?

We think this makes it possible to build a development and test environment that is essentially isolated from any other environment on the network, but available as an on-demand service to developers. ■

► **Cybersecurity**, from page 1

The number of cybersecurity-related job openings listed on the Dice.com website for IT professionals rose significantly in April 2012 compared to a year ago. The biggest increase was for cybersecurity specialists, which rose 74% with 920 open job listings. U.S. companies also are hiring thousands of network security, information security and application security experts.

"Every year, threats go up, so every year companies increase investment in security," says Tom Silver, senior vice president of North America for Dice. "On Dice, information security jobs reached an all-time high last month Companies want security professionals to counter breaches and also anticipate gaps, suggesting measures to fill them. Protection is key."

Several trends are driving the demand for cybersecurity experts. Companies have increasingly complex networks, more transactions to process, and more data than ever. They're using cloud applications such as Salesforce and Taleo, which extends their need for information security outside the perimeter of their networks. Additionally, they're dealing with a flood of user-owned mobile devices such as smartphones and tablets.

The cybersecurity skills needed three years ago compared to now "is a whole different ballgame," says Sudhir Verma, vice president of consulting services and project management at Force 3, a Crofton, Md., government contractor that is hiring several senior engineers, solutions architects and analysts for its security team.

"Three years ago, the iPad was not in play. Now we're hiring experts in our practice who understand the bring-your-own-device and consumerization trends," Verma says. "Everything is in flux with the move to the cloud and mobile devices. It's no longer about managing firewalls for IT security. It's beyond that. It's about how to protect information in the enterprise in an environment that includes cloud applications and tablets."

All of these trends are prompting CIOs and CISOs to hire experienced security professionals to safeguard their sensitive information. They are particularly concerned about protecting intellectual property from theft by government-sponsored hackers from countries such as China.

"There's certainly a great need in the market, with cybersecurity breaches costing U.S. companies upwards of \$400 billion annually in intellectual property theft alone," says Don

Fastest growing security jobs

	April 2012	April 2011	% Change
Cybersecurity	920	528	74%
Network Security	1,960	1,452	35%
Information Security	1,771	1,346	32%
Security Engineer	690	533	29%
Data Security	541	420	29%
Application Security	638	550	16%

SOURCE: DICE.COM

Hanson, senior vice president with Yoh, an IT staffing agency.

Hanson sees demand for developers who can build secure applications, network engineers with security certifications, and architects who understand how to secure systems and processes. He says there is also a need for IT professionals to be involved with security monitoring, information assurance and regulatory compliance.

"The biggest need is for folks that are working in security with cutting-edge technologies," Hanson says. "There are so many mobile devices out there, it's important to add the layer of mobile device management and to understand how that additional layer works."

Hanson says companies are looking to hire IT professionals with experience in security information event management, intrusion detection, data loss prevention and logging systems, as well as those with certifications related to ethical hacking and digital forensics. However, they prefer to hire IT professionals with a big-picture perspective on security issues rather than expertise in only one type of security device.

"It's not so much about any one technology or any one point product," Hanson says. "It's more about a holistic approach to security that companies are taking that includes their policies and assets across their entire information architecture."

The titles for open cybersecurity jobs vary, with the most popular being security engineers, security analysts and security architects. Other organizations favor the terms cybersecurity analysts and information assurance analyst.

"We're looking now for cybersecurity intelligence analysts and information assurance analysts who understand how to look at information not only from a technical and logical security standpoint, but who can relate that back to risk management and business process risk," says Jacob Braun, president and COO of Waka Digital Media Corp., a

Boston-based IT security consulting firm. "We're looking for people who can look at attacks in progress and can find occurrences that are symptomatic of attacks and ... can help mitigate potential for future attacks."

Most of these high-paying cybersecurity jobs are not for recent computer science graduates; instead companies are looking to hire IT professionals with five to 15 years of experience with security systems and processes as well as related certifications.

"A cybersecurity analyst is someone who has nine to 15 years of professional experience, preferably has a master's degree and possesses a variety of information security certifications," Braun says. "Salary depends on geography and industry. It can range anywhere from \$80,000 to \$150,000. If an individual has a unique set of experience, it can be significantly higher, especially for consultants."

Last year, Unisys hired an IT security director and expanded its IT security staff. Now the company is looking for knowledge of security principals in all of its ongoing IT hires, including application developers and network engineers, says Unisys CISO Dave Frymier.

"The reason that senior application architects and senior network engineers have got to have security knowledge is because we want to bake security into the early parts of the development process," Frymier says. "I've interviewed several application architects who had sterling-looking resumes and when I asked them to describe an SQL injection attack, they couldn't do it. We didn't hire them."

Unisys has 15 cybersecurity professionals on staff out of an overall group of 150 IT professionals. Frymier says Unisys needs cybersecurity expertise in its IT architecture and IT operations.

"The breaches that are occurring are problems on the operational side," he explains. "Somebody who runs a security information and event management system has to have a lot of experience ... so they can deal with the false positives. Those systems throw out literally gigabytes worth of data. You have to be able to filter through that and find the stuff that really shouldn't be there."

Demand for cybersecurity experts is expected to remain strong.

For example, Department of Homeland Security Secretary Janet Napolitano told a Senate committee in April that cyberattacks are her No. 1 concern. She said there is a shortage of cybersecurity experts to help federal agencies thwart cyberattacks, which exceeded 106,000 last year. ■



LET'S STOP COMPROMISING MOBILE SECURITY FOR MOBILE DIVERSITY.

INTRODUCING BLACKBERRY MOBILE FUSION.

Now all personal and corporate-owned BlackBerry®, iOS and Android devices can seamlessly access business data and applications on a single, secure management platform. To find out how this new approach will end mobile chaos, visit blackberry.com/mobilefusion

 **BlackBerry**
Be Bold

IT shops sifting RIM's bold promises and plans

BY JOHN COX

ORLANDO — Research in Motion executives and managers practiced staying “on message” at BlackBerry World last week, repeating a series of mantras about the company’s directions and product plans. Yet the simple message is running into the hard practicalities of enterprise IT customers, and they want details and nuance.

Sometimes both were in short supply at RIM’s annual customer conference in Orlando. RIM is in the middle of a life-or-death transition, moving to a new operating system, building support for it from application vendors and software developers, and crafting the next generation of smartphones and tablets due out later this year. RIM is creating plans and products at a rapid pace for both consumer and enterprise markets.

But RIM’s enterprise customers are incredibly diverse. Some are stable for even fast-growing BlackBerry shops. Some use the phones only for email and voice calls, others with only minimal app downloads. Nearly all of them are at different stages of struggling with how to deal with employees at all levels who bring non-BlackBerry devices to work and want to access email at least and sometimes more, often to the detriment of RIM. Surprisingly, few of those interviewed are closely following BlackBerry 10, the next-generation mobile operating system highlighted at BlackBerry World.

Cereal company MOM Brands, until recently known as Malt-O-Meal, has about 500 BlackBerry users, but few of them seem really satisfied with their smartphones, according to a pair of technical support analysts at BlackBerry World. “Most of our users are not BlackBerry fans,” says Tim Wood. “They want the iPhone.”

Colleague David Aman says he walks through the company and often sees a user’s BlackBerry lying on the desk, “and another [brand of] phone right next to it. It’s silly.” Some of the dissatisfaction is caused by a raft of small and not-so-small annoyances, ranging from podcasts being stopped when a call comes in and never resuming, to frustratingly poor battery performance.

Top executives now want iPads and iPhones, many of which are being informally “tested” by these senior managers who bring them to work and then want support. Aman says that IT is considering adopting a bring-your-own-device (BYOD) regime as a way

of simplifying mobile confusion and IT’s responsibilities.

Yet at South Africa-based Sasol, a global chemicals manufacturer, the mobile policy bans personal devices in favor of corporate-issued BlackBerry smartphones. At Sasol North America, headquartered in Houston, systems administrator Tray Gonzalez has about 2,000 BlackBerry users in various regions, with 500 in the U.S. The number has been increasing and field sales staff are now testing a few BlackBerry PlayBook tablets.

“We haven’t allowed BYOD, but so many people are requesting it, that we’re looking into it,” Gonzalez says. One concern is that a change in policy would lead to an unmanageable explosion of iOS and Android devices.

Gonzalez says he’s impressed with RIM’s recent release of the BlackBerry Device Service (BDS), an application for managing PlayBooks and all future BlackBerry 10 devices, and Universal Device Service (UDS), for managing iOS and Android devices, under the umbrella product name of BlackBerry Mobile Fusion. The classic BlackBerry Enterprise Server (BES) is needed for managing existing handsets running the traditional BlackBerry OS. A Web portal, called Mobile Fusion Studio, lets an administrator see the three separate device groups in a unified view.

Gonzalez plans to download the free, 60-day trial version of the Device Service and test it out. “I think it’s great,” he says.

The Mobile Fusion family promises to let IT centralize a multi-platform device population at Bed, Bath & Beyond, the housewares and home furnishings retailer based in Union, N.J. Currently there are a little less than 500 corporate-issued BlackBerry users, and now under the company’s recent BYOD program, about 300 iOS users, says Paul Rubino, the company’s wireless supervisor. Some but not all of the iOS users are former BlackBerry users.

PlayBooks are being tested in some stores, along with an in-house app for real-time inventory management, and BlackBerry Device Service would be the central tool for managing a far-flung deployment, Rubino says.

But some users are waking up to the potential costs of RIM’s Mobile Fusion approach for mobile device management (MDM): a burgeoning back end of separate servers. A multibillion-dollar diversified manufacturer has 4,500 BlackBerry users, but also has 600 Apple iPads, which are managed by SAP’s Sybase Afaria mobile management



RIM CEO Thorsten Heins demos a smartphone running BlackBerry 10 at BlackBerry World in Orlando last week.

application. The company also has just installed BlackBerry Device Service, to manage the few existing PlayBooks but in expectation of more in the future. The idea is, “We have 4,500 users with the BES,” says an IT staffer who manages mobile infrastructure support, and who spoke on condition of anonymity. “If we can leverage that, that’s good.”

But there are stumbling blocks. BDS and UDS, as do most other MDM offerings, typically use Microsoft Exchange ActiveSync. EAS can be used to deliver email as well as to exploit management or security features offered by Exchange Server. RIM uses EAS in these services to deliver mail to non-BlackBerry devices. That came as a surprise to the IT staffer at the big manufacturer. “We were expecting to get secure mail delivery,” he says. “So now, it’s Microsoft that’s giving us our ‘secure’ mail?”

In a conference session introducing Mobile Fusion, John Edward, a RIM senior product manager, said the company leverages ActiveSync but “we add a secure container on the device and a secure tunnel [to the enterprise].”

There are also the separate back-end servers that host BDS and UDS. Currently the manufacturer has four BES servers, two of them as high-availability backups, to support the BlackBerry in use. Both BDS and UDS will require one or two or possibly more servers, and if they’re part of a high-availability deployment, a backup server for each. The total BlackBerry server population could double or more, he says.

Because the current BES architecture will not support BB10, enterprises will have to deploy and test BlackBerry Device Service, before the rumored October 2012 release date of the first BB10 devices, he points out. ■

TOOLS

An RDP client and a smartphone 'copter

Ah, what a week it's been. Raveling the unraveled and fixing stuff I thought was fixed. So, my first find of the week: I'm moving all of my Windows desktop boxes out into a rack and the only machines I'll have in my office will be an iMac and a small flock of laptops and pad-style devices. Nice. But what Remote Desktop Protocol (RDP) client to use on my iMac so I can access my PCs?

Microsoft's RDP client, Remote Desktop Connection Client 2.1 doesn't support OS X 10.7 or later. Meh. Then I found CoRD, which is FOSS (free open source software), small, fast, and runs on all versions of OS X.

CoRD is actually a native OS X Cocoa interface (API) version of redesktop, another FOSS product that has spawned a whole family of RDP clients, including CoRD, that cover a wide range of operating systems.

When running multiple sessions you can have them in separate panes or have all sessions unified into a single window along with the pane that lists your saved servers.

You can run remote sessions full screen and also have any or all of your local drives "forwarded" to the remote machines so they appear to be local to the remote computer (the drives appear under "Computer"). It's worth noting that even if you change drive forwarding in the application preferences, that only enables or disables forwarding globally so you'll also need to enable forwarding for each session you set up.

I've only been running CoRD for a short time but it appears to be completely stable as well as being fast and doing the job perfectly. CoRD gets a Gearhead rating of 5 out of 5.

My next delight is a helicopter. Well, actually an electric toy helicopter: the Griffin Helo TC Assault, which I feel is reasonable to include in this column as it uses a free iOS or Android app for control so it kind of fits the whole consumerization of IT and bring your own device thing. (Ha!)

These flying machines are small (the

fuselage is just 8 inches long) and you charge the internal rechargeable battery using the supplied USB cable with a special connector at the helicopter end.

The Helo TC Assault is cooler than its older brother, the Helo TC, because it has a pair of missiles that can be fired while you're flying! The controller for the Helo is a block that clips on to the side of your smartphone. This device has a jack that plugs into your phone and a bank of infrared LEDs on its edge.



Griffin's Helo TC Assault toy helicopter is controlled via smartphone app.

The Helo app on the smartphone communicates with the controller via audio tones and controls the helicopter's lift power and trim adjustment along with control of forward and backward movement, left and right rotation, and, if you're flying the Assault version, firing of each missile individually. There's also an emergency landing button so



Mark Gibbs' Gearhead

if you lose control (as I often do) you can try for a soft landing or at least one where you don't mangle the rotors. You can also record a flight pattern and replay it.

Three people can each fly a Helo simultaneously (the controllers allow you to choose one of three control channels) so the possibility of conducting after-office hours aerial battles in the cubicle farm awaits you.

The Helo TC Assault is, I must admit, tricky to fly (maintaining altitude requires some skill) and my unit seems to have a battery fault, reducing its flying time from a typical 10 minutes down to about 60 seconds. Even so, the Griffin Helo TC Assault, priced at \$59.99, gets a Gearhead rating of 4.5 out of 5.

My final techno-frippery of the week is a service I have just installed called SpiderOak. SpiderOak provides cloud-based backup, file synchronization, and file sharing across multiple machines running different OSs.

"Meh," you might be muttering. "There are scores of online backup services... what makes this one noteworthy?" The answer, my friend, is SpiderOak's "Zero-Knowledge Privacy Standard."

The big idea here is that all data leaving your computer is encrypted before it gets transferred and SpiderOak has no way to view your content. The feds could, it is claimed, subpoena SpiderOak to their heart's content and SpiderOak could tell them nothing. Nyet. Nada. So, if you have deep, dark secrets that need backing up and/or sharing this could be the service for you.

SpiderOak sees Dropbox and Box as its primary competition and, at \$10 for 100GB per month, SpiderOak is, respectively, half and a quarter of the price monthly of the other services as well as far more private.

Having only just installed the SpiderOak I can't say that I really know all the ins and outs of how the service works but, so far, I'm impressed. I'll rate SpiderOak sometime in the next few weeks. ■

Gibbs is in the clouds in Ventura, Calif. Store your thoughts to gearhead@gibbs.com.

GADGETS

Easy-to-mold custom earbuds; 2TB portable storage for Mac users



Keith Shaw's
Cool Tools

THE SCOOP

Sculpted eers

by Sonomax Technologies,
about \$300

► **What it is:** Eers are custom earbuds with an in-line microphone that feature the company's Sonofit Fitting System, which molds the earbuds to the shape of the user's ear — the outside part and just inside the ear canal. This creates a unique custom fit and shape — once you create the earbuds, nobody else can use or borrow them for such a fit.

► **Why it's cool:** A few years ago, I had a pair of Ultimate Ears, which required a visit to an audiologist to get them custom molded. The earbuds worked great, but the plastic form eventually got uncomfortable when wearing them during long stretches. Not only is the process easier with the eers, but the materials used feel a lot more comfortable inside my ears than hard molded plastic.

The process involves squirting some solution on the unformed earbuds, then sticking them in your ears for five minutes (the unit comes with an old-school headphone-like device that helps you keep the earbuds in your ears during the molding process). The earbuds are then ready to use, and the shape formed through this process makes them unique to you. The earbuds also have a handy ear loop that you can put behind your ears, for a more secure fit.

The earbuds sound great, making them wonderful for taking along with you on a long flight, or if you want earbuds that aren't going to fall out when you are working out.

► **One caveat:** At first the molding/sculpting process can feel a bit daunting, so having someone help you with the fitting is a suggestion. Also, when finished, the earbuds didn't completely seal inside my ears like I expected them too, so I thought I may have messed up the process. But in the end, I think it's a good thing, as this made them feel more comfortable than if I had jammed them inside my ears during the molding process.

► **Grade ★★★★★ (out of five).**

There is no need for a visit to an audiologist with the form-fitting Sculpted eers.

THE SCOOP

My Passport Studio portable hard drive

by Western Digital, about \$300 (for 2TB; other capacities include 1TB for \$200, 750GB for \$180 and 500GB for \$160)

► **What it is:** A portable high-speed storage drive designed for the Mac, the My Passport Studio provides two FireWire 800 ports and one USB 2.0 port and a solid metal enclosure that gives Mac users additional storage capacity. The drive can act as a Time Machine backup for the Mac, as well as just providing file storage space. The unit also comes with WD Drive Utilities and WD Security apps, which provide diagnostics, a sleep timer, erase functionality and encryption.

► **Why it's cool:**

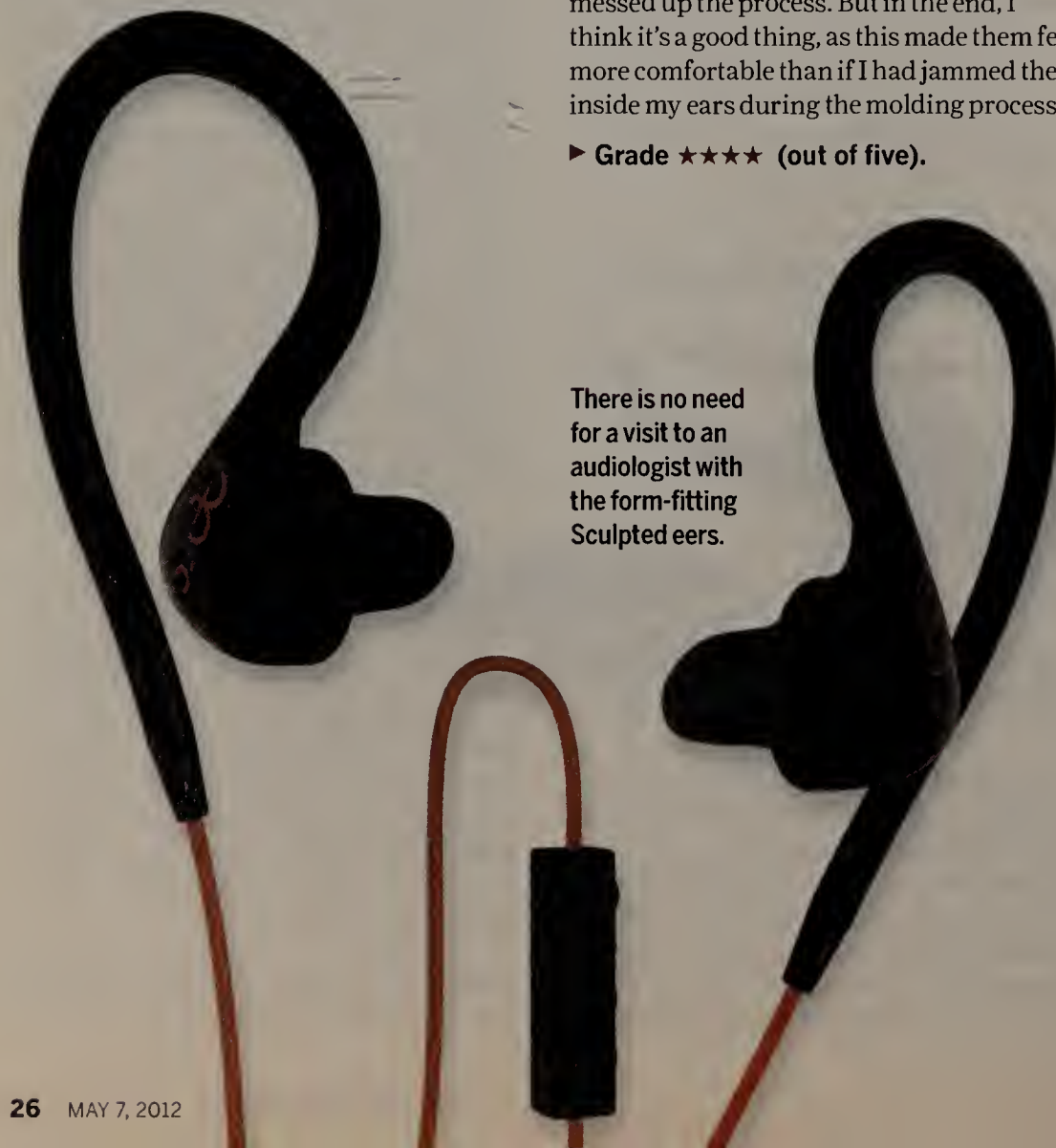
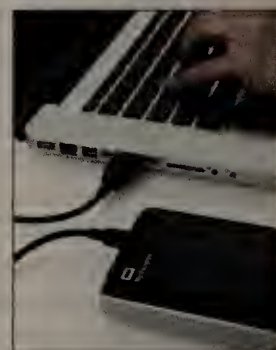
I like the addition of a second FireWire 800 port. This lets you daisy chain an additional external storage drive, or you can attach a different peripheral — this is handy if you have multiple devices that need the FW800 port on your system. Another plus is that the drive comes with a FW800 and USB 2.0 cable, instead of having them sold separately.

During my speed tests, I achieved between 62M and 65MBps of write speeds, and between 15M and 35MBps of read speeds (depending on the test and platform performed). This was slower than some tests I've done via USB 3.0 drives, so don't expect super-speed data transfers with this drive (if you are, head to Thunderbolt-connected units).

► **Bottom line:** If you're a Mac user and you're looking for a solid drive with a ton of capacity (you'd be amazed about how fast your hard drive fills up when editing/creating videos), this is worth a look.

► **Grade ★★★★★**

Shaw can be reached at kshaw@nww.com.



Want to be in the know about the latest IT topics and trends?

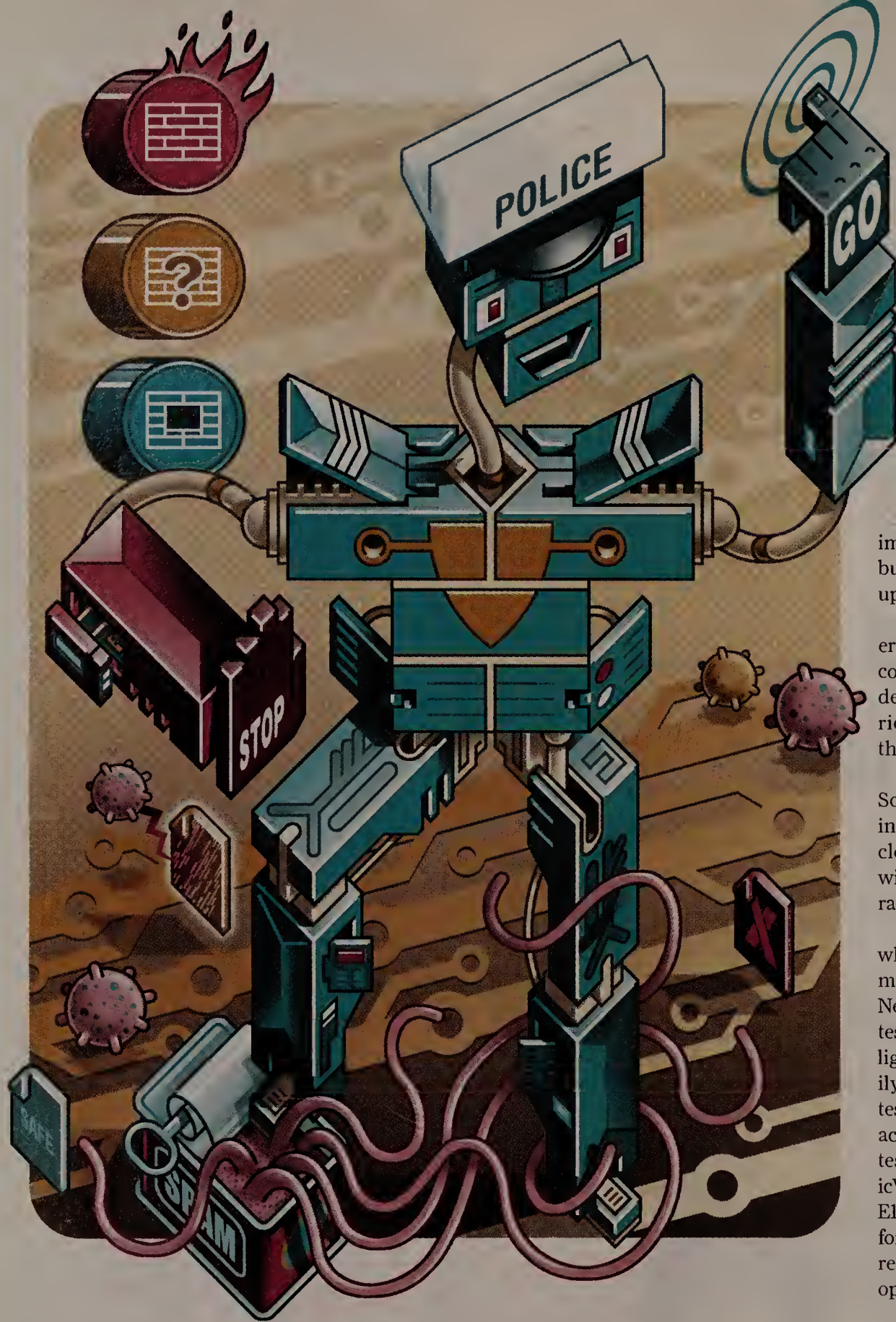
Become a Network World **INSIDER**

You'll gain exclusive access to premium content and resources, including:

- What to buy. In-depth reviews of network and IT solutions
- Executive and Peer Interviews and Insights. Deep dives with the industry's top thinkers
- Practical tips. How-to articles for network and IT professionals
- Exclusive research & analysis. Incisive reports, case studies, and more
- How to get ahead. Career advice from industry experts and peers
- Invitations to select events. Get the inside edge

To register for Insider exclusive content visit:
www.networkworld.com/insider

NETWORKWORLD



NEXT-GENERATION FIREWALLS (PART 2)

Application layer firewalls: Off to a good start

Check Point, SonicWall and Fortinet lead the way, but all four products tested are a work in progress

BY JOEL SNYDER

When we tested four next-generation firewalls strictly on performance, we found that the products could forward packets at impressive rates, but throughput dropped when advanced security features were turned on. We now dive deep into application identification and control — the defining features of next-gen firewalls — to find out what works and what doesn't.

We discovered that although the four products tested show promise, there's still work to be done. Check Point, SonicWall and Fortinet were clustered at the top of our scorecard, but still have areas we hope to see improved. Barracuda didn't score as well, but is in the middle of a significant product upgrade.

The defining characteristic of a next-generation firewall is the ability to identify and control traffic at the application layer, so we designed a suite of 40 tests in nine categories to see how well the firewalls lived up to their billing.

No one came close to a perfect score, with SonicWall SonicOS identifying and blocking 26 of our 40 test applications, followed closely by Check Point Security Gateway with 24, Fortinet FortiGate with 21 and Barracuda NG Firewall with 18.

(Editor's Note: In the first part of this test, which appeared on April 23, vendors submitted their biggest, fastest boxes to David Newman's lab in California for performance testing. We allowed vendors to send a smaller, lighter device within the same product family to Joel Snyder's Arizona lab for features testing. In every case except SonicWall's, the actual product name was the same for both tests, just a different model number. In SonicWall's case, we tested the SuperMassive E10800 for performance and the NSA E8500 for features, so to avoid any confusion we're referring to the product here as SonicOS, the operating system both models share.)

In our features testing, some apps caused more problems than others. For example, in our quest for recent episodes of "The Big Bang Theory" (porn for geeks), Check Point and SonicWall blocked our BitTorrent client from reaching out and touching Sheldon, while Barracuda and Fortinet didn't.

On the other hand, Check Point couldn't block Skype and none of the products blocked Google's Gmail, which slipped through when we hit the "click here for basic HTML if your browser is not showing you your email" button.

SonicWall has so many subdivisions of every application, none of which were documented or made any sense to us, that we gave it a failing score when we tried to allow end users to see Facebook, but not post to it — one of vendor marketing's favorite examples of why a next-generation firewall is a good

NETRESULTS

Product	SonicWall SonicOS	Fortinet FortiGate	Check Point Security Gateway	Barracuda NG Firewall
Anti-Malware and URL Filtering (10%)	4	4	4.5	3
Intrusion Prevention (10%)	3.5	4	4.5	3.5
SSL Decryption (15%)	4.5	3.5	3.5	3
Next-Generation Application Identification (30%)	4	3.5	4	3
Basic Firewall Features (10%)	4.5	4.5	5	4
IPv6 Feature Set (5%)	2.5	3	3	2.5
Next-Generation Visibility (20%)	3.5	4	4	3.5
Total	3.9	3.8	4.1	3.2

idea. It was possible to block Facebook completely, but you can do that with a URL filter — you don't need a next-generation firewall. SonicWall would have had a higher score if its application identification GUI wasn't so poorly designed.

The Check Point Security Gateway has a fantastic management interface for application identification and control that is much easier to use than the other products we tested. However, the engine underlying that interface doesn't work as well as SonicWall. For example, we could easily create policies that blocked particular parts of Facebook or LinkedIn, but those policies didn't actually work. Only when we blocked all of LinkedIn, for example, did the firewall behave properly.

Fortinet's FortiGate fit somewhere between SonicWall and Check Point on the management interface front. Not as elegant as Check Point, but much more usable than SonicWall, FortiGate was easy to learn and use.

But FortiGate stumbled most when encrypted traffic was involved. For example, a rule to block the popular webmail application SquirrelMail worked great when SquirrelMail was run over standard Port 80, but if we encrypted the same traffic on standard HTTPS Port 443, FortiGate wouldn't block it — even though we could see that the FortiGate was decrypting and re-encrypting the traffic as expected. The same was true of Facebook — unencrypted Facebook was blocked or allowed per policy, but if we

simply used HTTPS for Facebook, the policy didn't work properly.

Barracuda undergoing update

We had a difficult time making Barracuda's next-gen firewall block applications without some help from technical support, largely because of the poor design of the management GUI.

For example, because application identification occurs in the HTTP and HTTPS proxies, which are separate tools, you have to duplicate policy, wasting time and adding the opportunity for errors and inconsistencies. Barracuda told us that this, and other problems we had in the GUI, would be fixed in release 5.4, so we advise waiting until that version is available before even starting to test next-generation features.

Even if you do remember to change the policy in both proxies in the Barracuda NG Firewall, you also have to be careful when defining applications to be blocked. Although you get to pick which application you want to block in the first screen that pops up, you have to scroll down for three full screens before you can enter the list of networks this rule applies to.

Apparently, if you leave that blank, it doesn't apply to any users or networks, nor is there any pop-up dialog box saying "you've created a new rule that doesn't actually do anything."

Overall, Barracuda turned in the lowest application identification score because it didn't have the ability to match as many

Palo Alto stacks up well

Palo Alto Networks has bet everything on being a next-generation firewall.

Without the next-generation hook, Palo Alto has little chance at breaking into the established world of firewalls, and it's done a good job at defining the category on its own terms.

In our initial foray into testing next-generation firewalls last August, we looked at Palo Alto's PA-5060 by itself, so it's only logical to consider how Palo Alto stacks up against the four vendors in this test.

We used a different methodology to test application identification between the two tests, so we can't make a head-to-head comparison. Palo Alto's PA-5060 had a higher identification rate when we passed canned applications, but we can't generalize from that. However, in areas such as management of application firewall rules, we'd put it at the top. Likewise, the Palo Alto PA-5060 had a good design for what to do once application traffic matches, again putting it at the top, with Check Point's Security Gateway.

Since Palo Alto didn't have to carry any legacy GUI baggage with it, the company was able to design its management from the beginning to handle the integrated application identification and threat mitigation features, all at once. On the other hand, Palo Alto has a way to go with the performance of its manage-

See **Palo Alto**, page 36

applications as we were testing for. For example, the NG Firewall didn't have signatures for generic webmail applications or tools such as Lotus Notes, Outlook Web Access or SharePoint.

Some of the application categories the NG Firewall did have didn't make a lot of sense to us. For example, to block YouTube, you have to block "social networking," which does work — but it blocks more than just YouTube.

And when a category was successfully identified, the NG Firewall didn't always successfully block it. For example, Microsoft and Apple software updates showed up in the logs when we added a rule, but the NG Firewall wasn't able to successfully block them.

Additional features

The demand for next-generation firewalls may be focused on application identification, but we believe that there are other ways to "widen the tuple" to help network managers classify and control traffic. For example, we found that all four of the products we tested let us add user or group information to policies.

We were interested in other ideas so we went looking for reputation-based policies, rate-based policies and geography-based policies. For instance, a network manager might want to block some applications, such as outbound FTP, to or from particular geographic areas.

Fortinet's FortiGate lets you write rules that refer to geography rather than just IP addresses. But more often, these features were not integrated into the firewall rule base. Check Point and SonicWall, for example, both allow the network manager to control traffic based on both IP reputation and geography, but did not fully integrate this feature into the firewall rule base; FortiGate has a slick rate-based policy feature designed to avoid denial-of-service attacks, but didn't integrate it into its firewall rule base.

It's a little early in the world of next-generation firewalls to say what else should go into firewall rule bases beyond application and user identification, but our testing showed that engineers are thinking about different options in this area.

Another area still out for discussion is exactly how application (and other next-generation) controls are integrated into the next-generation firewall. One school of thought suggests that they should be folded directly into the firewall rule base, creating a single unified policy that can refer to IP addresses and ports, users and applications all at once. The other approach seems to be pulling application controls out into a separate rule base.

In testing four products, we found four approaches to this question. All four left

Application-layer test results

We tested each next-gen firewall against 40 traffic types to see if the device could identify and block traffic. (A checkmark means the firewall passed the test; an x means it didn't.)

	Fortinet FortiGate	SonicWall SonicOS	Barracuda NG Firewall	Check Point Security Gateway
CHAT AND WEBMAIL (DATA LEAK-TYPE CONTROLS), MAIL PROTOCOLS				
Yahoo Mail	✓	✓	✓	✓
Google Mail	x	x	x	x
SquirrelMail	✓	x	x	x
SquirrelMail/TLS, SquirrelMail IPv6	x	x	x	x
SquirrelMail non-standard port	x	x	x	x
Google Talk Version 4	✓	✓	x	✓
Google Talk Version 6	x	x	x	x
AOL Instant Messenger	x	✓	✓	✓
Lotus Notes	x	x	x	✓
Microsoft Outlook Web Access	x	x	x	x
SMTP/25, SMTP+TLS/25	✓	✓	✓	✓
SMTP non-standard port (NSP)	✓	x	✓	✓
SMTP+TLS NSP	✓	x	✓	x
SMTPS/465	x	✓	x	x
IMAP/143, IMAP+TLS/143	✓	✓	✓	✓
IMAPS/993	x	✓	x	x
IMAP NSP	✓	x	✓	x
SOCIAL NETWORKING, SERVER PROTECTING				
Facebook Read	✓	✓	✓	✓
Facebook Write	x	✓	✓	x
LinkedIn Read	✓	✓	✓	✓
LinkedIn Write	x	✓	✓	x
Private label social networking	x	x	x	x
SharePoint	✓	✓	x	✓
Exchange	x	x	x	x
EVASION, REMOTE ACCESS				
Evasion — Facebook	x	✓	x	✓
Evasion — LinkedIn	✓	x	x	✓
Evasion — SharePoint	✓	✓	x	✓
Microsoft Terminal Services	✓	✓	✓	✓
VNC	✓	✓	x	✓
PEER-TO-PEER, STREAMING VIDEO/AUDIO				
BitTorrent	x	✓	x	✓
YouTube	x	✓	✓	✓
Internet radio	✓	✓	x	✓
VOIP AND VIDEOCONFERENCING, SOFTWARE AND SIGNATURE UPDATES				
Skype	x	✓	✓	x
SIP voice over IP	✓	✓	✓	✓
H.323 videoconferencing	✓	✓	✓	✓
Apple Software Update	x	✓	x	✓
Microsoft Windows Update	✓	✓	x	✓
Sophos Anti-Virus Update	x	x	x	x
TOTALS	21	26	18	24

Microsoft®

**BUILT FOR THE FUTURE.
READY NOW.**

Microsoft Private Cloud Solutions

In the future, you'll need to seamlessly manage applications across your private and public clouds.
Go with a solution that gives you flexibility from a single point of control.

Learn more at **Microsoft.com/readynow**



Windows Server



Microsoft®

System Center

user-based (and user group-based) controls in the main firewall rule base. From there, though, we found lots of variation. The Fortinet approach integrates everything into a single rule base, which we found the easiest to manage and the most intuitive from a basic security point of view. This approach is potentially the most powerful because it allows traffic to continue to flow only when all attributes match up, and it allows you to interleave rules with and without application controls.

Check Point and SonicWall broke the application rules out from normal firewall rules, meaning that traffic must first pass through the firewall rules and be allowed before any

application controls come into play. In the Check Point model, application and URL filtering rules are integrated into a single rule base, while SonicWall has a stand-alone application firewall module.

Barracuda's NG Firewall puts separate application rule sets in its HTTP and HTTPS proxy software. We found this problematic, not only because you have to define duplicate policies, but also because the way that policy definitions are created makes it impossible to mix "pass" and "block," severely limiting the flexibility of the engine. Barracuda told us it had this slated for a fix in Version 5.4.

Check Point and SonicWall engineers

both defended their choices by pointing out a problem in application firewalls: You can't decide what application is being run without allowing some traffic through the firewall, including, perhaps, traffic that the network manager might want to have blocked.

An example might be helpful. Suppose you have a corporate policy that says "SMTP outbound is allowed only on Port 25." Taken in isolation, this means that you'd have to write two rules, one to allow SMTP on Port 25 and the other to block SMTP on all other ports. Then, you could have additional allow rules, such as allowing HTTP or IM outbound traffic on multiple ports. The result of this policy

SSL decryption: SonicWall delivers

If one of the main advantages of a next-generation firewall is application and protocol identification and control, then SSL decryption is a basic requirement. We looked at the SSL decryption capabilities of the next-generation firewalls to see how well they would be able to discover applications, protocols and URLs hidden within encrypted connections.

When SSL decryption is in place, the firewall performs a "sanctioned man-in-the-middle attack." This means that the firewall intercepts the SSL connection and performs a man-in-the-middle attack to decrypt the contents. Because the attack is done with the permission of the enterprise, it's called "sanctioned."

This requires that the enterprise have a private certificate authority that is trusted by all users behind the firewall, and that the certificate authority can issue a "signing" certificate. The signing certificate is loaded into the next-generation firewall, and for every SSL connection, the firewall generates a new certificate in real time and uses it to secure the SSL connection between the end user and the firewall, replacing the original certificate. The firewall then secures the connection using the original certificate. Because the firewall is stacking together two encrypted connections, it can see the traffic, unencrypted.

The only next-generation firewall we tested that did a good job of SSL decryption was SonicWall. With two check boxes, we were able to enable SSL decryption and then apply the next-generation firewall features to the traffic. Four more check boxes enable antivirus, anti-spyware, intrusion prevention and content filtering on the SSL traffic. The configuration, including loading our own certificate authority certificate, was simple and fast, and the decryption worked. Additional features we were looking for, such as the ability to exempt traffic from decryption by IP address, user group or certificate common name (such as "www.bankofamerica.com" or "www.kaiserpermanente.org") were no problem.

We also tested that the SonicWall system could pass through certain errors to clients, such as a self-signed certificate (SonicOS figured that one out) or a certificate that was revoked by the issuer (not detected by SonicOS), and discovered that there is still some work to be done.

The story was not nearly as good with the other firewalls. Check Point's Security Gateway has a more elaborate and better thought-out configuration system with more bells and whistles. For example, with the Security Gateway you could exempt all domains in a certain category (such as financial services) from being inspected. The Security Gateway also passed all of our SSL validation checks, detecting revoked and self-signed certificates just fine. However, the Security Gateway can only inspect HTTP traffic on known SSL ports. This means that an application that runs over non-standard ports won't be inspected, and neither will any application that uses a different protocol — such as email, instant messaging or file transfer.

Fortinet's FortiGate did a better job at covering more protocols, handling HTTP, SMTP, POP3, FTP and IMAP running over SSL, but only on known ports. Fortinet's engineers told us that the SSL decryption is linked to their antivirus transparent proxy system, which is what kept it from running across more ports. But what FortiGate made up for in coverage, it lost in configuration controls. There's no way to exempt traffic from decryption except by IP address, and the FortiGate let through both self-signed and revoked certificates, making two invalid websites look as if they were well secured, even when the firewall was configured to block invalid SSL certificates.

We were also disappointed in the SSL decryption capabilities of the Barracuda NG Firewall. Unlike other next-generation firewalls, the NG Firewall requires you to explicitly configure HTTP clients (no other protocol is covered) to use the HTTPS proxy on the NG Firewall. This means that if the client can get through the firewall without using the proxy or can send the traffic over any other port, it won't be able to apply next-generation controls or IPS signatures to the encrypted traffic, even if the traffic goes through the NG Firewall. Barracuda's engineers told us that this limitation will be lifted in Version 5.4.

Overall, the results were disappointing, since only one product, SonicWall SonicOS, supported what we considered basic functionality. This suggests that the products are still evolving rapidly to meet the requirements for this new product category and that the PR and marketing teams are moving a bit faster than the engineers.

Is your network collaboration-ready?

Success belongs to businesses that excel at collaboration.

Avaya Networking provides everything you need to create an enterprise-wide private cloud infrastructure built for anywhere, any-device collaboration. From one-touch provisioning to universal role-based identity that simplifies management of BYOD, your network will be more powerful and scalable, with dramatically improved performance and reliability.

**Learn how a collaboration-ready network unleashes
The Power of We.™ Visit Avaya.com/networking.**

AVAYA
The Power of We™

© 2012 Avaya Inc. All rights reserved.

would be that the firewall would have to allow all other traffic outbound to connect and transfer data long enough to decide whether or not it was SMTP traffic. Our vendor engineers were concerned that this could easily result in unintended consequences and insecure configurations — a reasonable objection.

This is one area where next-generation firewall vendors are still finding their way. We think that Fortinet is on the right track here, but since this is an open area of discussion, we did not include it in our scorecard.

Next-gen visibility

Knowing what's happening on your network is a prerequisite to controlling the traffic. We call that "visibility" because it combines all of the information the firewall knows, including session and application information, traffic volumes and rate information, into a way to "see" into your network — to give you visibility.

In a traditional firewall, visibility is a nice-to-have, because security policy dictates what ports are allowed inbound and outbound and other tools, such as NetFlow analyzers, can be used to dig into traffic. In next-generation firewalls, where the emphasis is on controlling application usage, visibility is a requirement.

Applications may have many different names and categories, and compared to ports and IP addresses, we found tremendous variation and ambiguity. Without visibility and knowing how the firewall classifies each application it identifies, you can't write the rules that make a next-generation firewall "next-generation."

We quickly found that if you want good reporting, you need to have an external device to do it. SonicWall and Fortinet both have internal reporting engines; both engines had problems during our testing, which was entirely expected by the on-site engineers.

Fortunately, all products have off-box reporting engines that are critical to offering next-generation visibility. Check Point customers are not off the hook here either, because the standard Check Point reporting system won't do — you really must add on the optional SmartEvent to get the visibility required for next-generation firewalls.

Fortinet FortiGate and Check Point Security Gateway (SmartEvent) gave us the best visibility into our traffic, with a combination of drill-downs, visual reporting including charts, lists and "top-10" type lists. FortiGate's on-box dashboard was an especially slick visualization tool, which let us add "widgets" that included mini-reports that were constantly updated. FortiGate's dashboard wasn't just a visualization tool, because it included the ability to drill-down to get additional information.

Check Point wins URL filtering tests

URL filtering has become a "check box" feature on most unified threat management firewalls, and no wonder: It doesn't require a lot of imagination to do it right, and it's hard to really differentiate yourself or do a bad job of it.

Three of the vendors tested — SonicWall, Fortinet, and Barracuda — had nearly identical interfaces to define URL filtering policy. There are some minor differences — for example, Fortinet had a cute feature that would limit the amount of time you could spend on a category ("you can look at sports pages, but only for five minutes"), but generally there was little difference.

The Barracuda NG Firewall had one major flaw, to be fixed in v5.4, which required us to set up separate and independent policies for the HTTP and HTTPS proxies, doubling the time to maintain the policy and increasing the chance of human error.

Check Point takes a very different approach by integrating URL filtering with application identification and control into a single policy. Check Point's combination of the two tools is a better way of building a next-generation firewall. URL filtering and application controls are closely related and overlap in many ways.

For example, blocking access to external webmail servers can use both application identification, to find private webmail servers, and URL filtering, to find public webmail servers. Combining the two techniques is better than using just one.

Our anti-malware testing really highlighted differences between the products and their approaches to scanning for viruses across broad categories of traffic. The two stars of the show here were Fortinet, for having the best antivirus engine, and SonicWall, for having the best coverage across different types of traffic.

Both Check Point Security Gateway and Barracuda NG Firewall did poorly at the task of finding viruses across many different applications, although Check Point Security Gateway did include a new anti-bot detection system.

We tested using a small handful of recent viruses that we found in the wild just before our testing started. Each of the products had plenty of time — more than two weeks — to update their signatures to catch the viruses we used. FortiGate caught 100% of the viruses we threw at it. Next in line was SonicOS, which caught 100% of the viruses when we sent them over HTTP and HTTPS protocols, but slightly less when we used FTP, IMAP and SMTP. Check Point Security Gateway and Barracuda NG Firewall caught fewer viruses in our small sample (80% and 90%, respectively).

The more important result was coverage across various protocols, and this is where SonicWall shined. Only SonicWall managed to find viruses no matter where we hid them. In configuring SonicWall to catch malware, you don't list specific ports, but applications running on top of those ports: HTTP, FTP, IMAP, SMTP, POP3, CIFS (Microsoft file sharing) and "everything else." When we sent viruses using common protocols through the firewall, the anti-malware engine inspected the traffic. It didn't catch each virus in each scenario, but there were no gaping holes where inspection didn't activate at all.

► See **Check Point**, page 36

Our only complaint about the dashboard is that the display tool crashed in our browser several times during testing.

The FortiGate reporting engine is based on an SQL database and Fortinet isn't shy about exposing the internals of the database. All reports are configured within the firewall and you can easily get to the raw SQL used to generate the results. If you're the type of network manager who wants a lot of very custom reports, but don't want to extract the data and dump them into your own database, Fortinet's approach will be very attractive.

SonicWall and Barracuda also have good visibility tools, but we found them weaker than what Fortinet and Check Point offered. SonicWall confuses the issue a bit by having four separate visibility tools, ranging from the on-box tools (only suitable in very small environments) to their enterprise-class management system, SonicWall GMS.

We looked at GMS, and were disappointed to see that there isn't feature parity between the on-box reporting and the high-end GMS. For example, in on-box reporting you can generally drill down to individual log entries, and



An IT Expert's **WORST FEAR** & How MovinCool Averted **DISASTER**

Eric Rieger, President of WEBIT Services, had a major server room emergency after three off-the-shelf A/C units quit. Now he has a MovinCool Office Pro 12. And greater peace of mind.

"Its performance and reliability are impressive, and the peace of mind it delivers is priceless."

To read more about Eric's application story, visit: MovinCool.com/Webit

Scan to see the top 50 reasons why MovinCool products are the highest quality in the industry.
MovinCool.com/50Reasons



Whatever your
heat problem is...



We've got you covered.

For computer servers to operate properly, they've got to be kept cool. Which was Eric Rieger's intention when he purchased three retail A/C units from a local "big box" store. Rieger, President of WEBIT Services, a managed technology services provider in the Chicago area, thought he had found an ideal solution. But all three subsequently failed. The last one on Christmas Day. After quickly contacting his local distributor, Rieger chose a MovinCool Office Pro 12. "Its performance and reliability are impressive," he reports. "And the peace of mind it delivers is priceless."

The self-contained MovinCool Office Pro 12 pumps out 12,000 Btu/hr, works on standard 115v power and requires no costly installation. Just roll it in. Plug it in. Turn it on. And its programmable digital controller easily integrates into office automation systems. "I even recommend MovinCool to clients," concludes Rieger. From mission critical cooling applications to computers and manufacturing processes and people, MovinCool is the solution.

MOVINCOOL
THE #1 SPOT COOLING SOLUTION

800-264-9573 | MovinCool.com



©2012 DENSO Sales California, Inc. MovinCool, SpotCool and Office Pro are registered trademarks of DENSO Corporation. QR Code is a registered trademark of DENSO Wave.

then go directly to policy editing if you want. With GMS, you can drill down, but if you want to change policy, you'll have to go find the affected rule yourself before you can start editing it.

Visibility isn't just reporting and top-10 lists; you also might want to look at what is happening in the firewall right at this moment. Instantaneous reporting is a weakness of most firewalls, but we found a great reporting screen in the Barracuda NG firewall that let us see open connections flowing through the firewall in real time.

Overall, we think that the visibility tools we found offer a good start into what is needed for next-generation firewalls. All of the products have slightly different approaches, but it was clear that an off-box reporting engine is a minimum requirement.

Fortinet's FortiGate FortiAnalyzer and Check Point Security Gateway SmartEvent led the pack, with Barracuda NG Firewall and SonicWall SonicOS falling slightly behind.

Taking action

Another area we looked at was the action options. In our testing, we simply asked the firewalls to block traffic. But in the case of Web-based applications, the network manager might want to intercept the request and display a page to the end user indicating that security policy prohibited the transaction.

The Check Point Security Gateway, which integrated URL filtering with application identification, was the only product that included this feature. The Security Gateway actually goes further than that, allowing the next-generation application identification rule to have an action that displays the "page blocked" message while allowing the user to click on through after acknowledging a warning.

We found other options as well. For example, SonicWall and Fortinet let an application rule apply some QoS settings, such as limiting traffic or guaranteeing traffic. Both also allow an action of "log packets" to save a transaction for later analysis.

When it comes to actually identifying and blocking applications, we would prefer a hypothetical product mixing two of the devices we tested: the SonicWall SonicOS engine configured by the Check Point Security Gateway management system. In the absence of such a mythical beast, SonicWall did the best job of identifying and controlling applications, but we found room for improvement in everything we tested. ■

Snyder, a Network World Test Alliance partner, is a senior partner at Opus One in Tucson, Ariz. He can be reached at Joel.Snyder@opus1.com.

► Palo Alto, from page 29

ment system, which is frustratingly slow when applying changes.

Visibility, showing you what is happening on your network, is another area where Palo Alto's PA-5060 shined in our test. Starting from scratch with the goal of next-generation visibility gave Palo Alto a big leg up, and the PA-5060 came out of the starting gate with an outstanding visibility tool, setting the standard for this category. While Check Point has some great features in SmartEvent, the prize for accessible visibility has to go to Palo Alto.

We didn't test the PA-5060's SSL decryption capabilities as systematically as we did the products in this test, but because the PA-5060 has an architecture more like SonicWall, with virtually unlimited SSL decryption, we expect it would have also landed at the top of the list with SonicWall.

When it comes to UTM features, the Palo Alto PA-5060 can be compared more closely to the products we tested. When it comes to IPS coverage, the PA-5060 turned in scores in the low 90% range, putting it up near the high scorers in our IPS testing. For the antivirus/anti-malware testing, the PA-5060 fit more in the bottom of the range of our testing.

We stand by our original PA-5060 test headline back in August: "Palo Alto earns short list status." If you are considering replacing your firewall to gain next generation features, Palo Alto remains a credible contender.

► Check Point, from page 34

The FortiGate anti-malware engine works great, but would only inspect traffic on ports we explicitly listed. This means that a web server on a common port, say port 80 or 443, would be inspected just fine. However, if someone on the Internet had a web server with some malware on a non-standard port, such as 81, then the FortiGate wouldn't catch it. Your alternatives are to block non-standard ports — a sure recipe to unhappy users and a poor workaround — or to have a hole in your security coverage.

The Check Point Security Gateway was undergoing rapid change in the area of anti-malware when we tested it, and so our results may not be representative of the final status when version R75.40 of the software is finally released. Check Point told us that it was working with its anti-malware engine supplier to achieve higher catch rates, but that some of our test scenarios, such as IMAP and SMTP over TLS, would not be supported even in the final release.

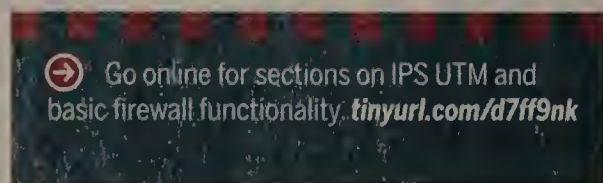
One of the anti-malware features Check Point offered that we didn't see in the other products was anti-bot protections. If anti-malware works to prevent infections, Check Point's anti-bot protection is designed to catch post-infection behaviors such as command-and-control channels and attempts to spread the infection or send spam. We didn't test the anti-bot protections, since none of the other vendors offered this feature.

We had a more difficult time testing the NG Firewall's anti-malware features because it uses proxies to handle virus scanning. Barracuda told us many of the issues we saw in this part of our testing will be resolved in v5.4.

In the case of HTTP traffic, the NG Firewall transparently intercepts the traffic as long as it's on a standard port. For HTTPS traffic, the NG Firewall must be manually configured as a secure proxy — unlike the rest of the products we tested — so we had to change our testing methodology just to get the firewall to scan the HTTPS traffic.

We ran into different issues trying to get the Barracuda NG Firewall to scan mail traffic. This only works if the firewall is used as a mail gateway.

When it comes to picking the best anti-malware, SonicWall and Fortinet turned in the best results in our filtering, but we think that the Check Point Security Gateway's anti-bot feature and unified URL filtering and application control features gives it a slight advantage.



What's at risk if bad power damages your business network?



**APC
Legendary
Reliability™**

Only APC Back-UPS delivers unsurpassed power protection *and* real energy savings.

Today's cost-saving Back-UPS

For years you've relied on APC Back-UPS™ to protect your business from expensive downtime caused by power problems. Today, the reinvented Back-UPS does even more. Its highly efficient design noticeably reduces energy use, so you start saving money the minute you plug it in. Only APC Back-UPS guarantees to keep your electronics up and your energy use down!

Unique energy-efficient features

Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby. Automatic voltage regulation (AVR) adjusts the undervoltages and overvoltages without using the battery. With our patent-pending AVR bypass, the transformer kicks in only when needed and automatically deactivates when power is stable. Plus, the APC highly efficient designs reduce power consumption when power is good and extend runtimes when the lights go out. Together, these power-saving features eliminate wasteful electricity drains, saving you about \$40 - \$50 a year. And managing today's Back-UPS couldn't be easier thanks to an integrated LCD that provides diagnostic information at your fingertips.

Trusted insurance for all your business needs

The award-winning Back-UPS provides reliable power protection for a range of applications: from desktops and notebook computers to wired and wireless networks to external storage. The reinvented APC Back-UPS is the trusted insurance you need to stay up and running and reliably protected from both unpredictable power and energy waste!

APC power protection products are available at:



OfficeMax



Office DEPOT

that was easy



Enter to win one of seven Back-UPS BR 700G (a \$130 value)!

Visit www.apc.com/promo Key Code n815v • Call 888-289-APCC x8399 • Fax 401-788-2797

APC
by Schneider Electric

Keep your electronics up and your energy use down!

Back-UPS models are available with the features and runtime capacity that best suit your application, and many models have been designed with power-saving features to reduce costs.

The high-performance back-UPS Pro Series

High-performance Back-UPS Pro units deliver cost-cutting, energy-efficient features. Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby, eliminating costly electricity drains. (BR700G shown above)

The energy-efficient ES 750G

The ES 750G boasts innovative power-saving outlets, which automatically shut off power to controlled outlets when the computer plugged into the host outlet is deemed asleep, eliminating wasteful electricity drains.

- 10 outlets
- 450 watts/750 VA
- 70 minutes maximum runtime
- Coax and telephone/network protection



The best-value ES 550G

The ES 550 uses an ultra-efficient design that consumes less power during normal operation than any other battery backup in its class, saving you money on your electricity bill.

- 8 outlets
- 330 watts/550 VA
- 43 minutes maximum runtime
- Telephone protection



Get Enterprise Level Monitoring for Peanuts

Be in the know with ITWatchDogs monitoring solutions.

- Alert notifications via Email, SMS, SNMP & Voice call
- Trigger backup fans or A/C on alarm
- Wide range of Environmental Monitors available starting at \$199

Order online and enter promo code **PEANUTS** for **FREE shipping!**

512-257-1462
sales@itwatchdogs.com
www.itwatchdogs.com

WHILE YOU WERE OUT

For: You Time: Middle of the night

PROBLEM:

Server went down	Power failure
Water on floor	Temperature High

Did you get the message?

Now with **Wireless Sensors**

Visit us at **INTEROP** booth #2451

Sensaphone Remote Monitoring Products

use *redundant communication paths, built in battery backup, and supervised sensors* to make sure that when something goes wrong in your computer room *you get the message.*

Notification Via:

- Voice Phone Call
- E-Mail
- Text Message
- SNMP Trap
- Pager
- Fax

Get your **FREE** application guide now

SENSAPHONE
REMOTE MONITORING SOLUTIONS

877-373-2700
www.sensaphone.com

MADE IN THE USA

dtSearch[®]

Instantly Search Terabytes of Text

The Smart Choice for Text Retrieval[®] since 1991

Highlights hits in a wide range of data, using dtSearch's own file parsers and converters

- Supports MS Office through 2010 (Word, Excel, PowerPoint, Access), OpenOffice, ZIP, HTML, XML/XSL, PDF and more
- Supports Exchange, Outlook, Thunderbird and other popular email types, including nested and ZIP attachments
- Spider supports static and dynamic web data like ASP.NET, MS SharePoint, CMS, PHP, etc.
- API for SQL-type data, including BLOB data

25+ full-text and fielded data search options

- Federated searching
- Special forensics search options
- Advanced data classification objects

APIs for C++, Java and .NET through 4.x

- Native 64-bit and 32-bit Win / Linux APIs; .NET Spider API
- Content extraction only licenses available

Desktop with Spider

Network with Spider

Publish (portable media)

Web with Spider

Engine for Win & .NET

Engine for Linux

Ask about fully-functional evaluations!

With dtSearch: "Endless indexing is now a breeze"
Computerworld

"Impressive searching power ... handles more than a terabyte of text in a single index"
Network World

"Lightning fast ... performance was unmatched by any other product"
Redmond Magazine

For hundreds more reviews and developer case studies, see www.dtSearch.com

www.dtSearch.com • 1-800-IT-FINDS

Sentry Power System™

More Intelligent. More Reliable. Easier To Manage.

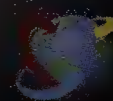
The industry's only data center rack-level power system. Only from Server Tech.

You want the world's most reliable power distribution units. You also want data center power monitoring, management and analytics, for multiple locations. And, you want to auto discover, group configure and manage your entire PDU network from a user friendly dashboard. You need Server Tech's Sentry Power System.

It's a SNAP. We've combined our Sentry PDUs with our award-winning Sentry Power Manager to give you one incredible critical system. Featuring our exclusive SNAP technology with "Plug & Play" functionality, you can configure hundreds or thousands of PDUs with a mouse click. You get an entire system to help you drive energy efficiency, uptime and ROI.

The new Sentry Power System™

Only from Server Tech. Learn more today at www.servertech.com



Server Technology

Quality Rack Power Solutions

www.servertech.com

1-800-835-1515

Visit us at Interop, Booth 2351

©2012, Server Technology, Inc.

Sniff out the root-cause of network bottlenecks.



**Attend our booth presentations
to learn about new wireless
protocols and 10G analysis!**

WildPackets
booth 1967



NEW
APP

Search, store, and share IT white papers from across the web.

Search thousands of relevant
IT white papers.

Organize what you find by
tag or project.

Store and access them
from your phone or desktop.

Share your briefcase content
with colleagues and friends.



Download the Tech Briefcase app
from the iTunes App Store.



■ Editorial Index

Amazon.....	12
Apple.....	10, 24, 30, 42
Arista Networks.....	1
AT&T.....	5, 10
Avaya.....	13
Barracuda.....	28, 29, 32, 34, 36
Big Switch.....	1
CenturyLink.....	13
Check Point.....	28-30, 32, 34, 36
Cisco.....	13
Citrix Systems.....	18
Comcast.....	10
Dell.....	13, 18
Extreme.....	13
Facebook.....	28, 29, 42
Fortinet.....	28-30, 32, 34, 36
Google.....	8, 10, 13, 18
Griffin.....	25
HP.....	10, 13
IBM.....	5, 8, 13, 42
Lyatiss.....	13
Microsoft.....	8, 18, 20, 24, 25, 30, 34, 42
Nebula.....	1
NEC.....	13
Novell.....	18
Oracle.....	5
Palo Alto Networks.....	29
Rackspace.....	13
Red Hat.....	18
Research in Motion.....	10, 24
Salesforce.....	22
Samsung.....	10
SAP.....	24
SonicWall.....	28, 29, 32, 34, 36
Sonomax Technologies.....	26
Sophos.....	30
Symantec.....	5
Verisign.....	1
Verizon.....	10
VMware.....	1, 18
Zynga.....	13

■ Advertiser Index

Advertiser.....	Page #	URL
1&1.....	19.....	www.1and1.com
APC.....	37.....	www.apc.com/promo
AT&T.....	44.....	att.com/business
AVAYA.....	33.....	avaya.com/networking
CenturyLink Business.....	7.....	centurylink.com/business
dtSearch Corp.....	38.....	www.dtsearch.com
GoDaddy.....	9.....	tech.godaddy.com
Hewlett Packard.....	11.....	convergedinfrastructure.com
IBM Corp.....	2-3.....	ibm.com/systems/foundation
IBM Corp.....	43.....	ibm.com/engines/cloud
ITWatchdogs.....	38.....	www.itwatchdogs.com
Meru Networks.....	4.....	merunetworks.com
Microsoft Corporation.....	15.....	Microsoft.com/office365
Microsoft Corporation.....	31.....	Microsoft.com/readynow
MovinCool.....	35.....	MovinCool.com
NEC.....	21.....	www.networkworld.com/whitepapers/nec
RIM.....	23.....	blackberry.com/mobilefusion
Sensaphone.....	38.....	www.sensaphone.com
ServerTech.....	39.....	www.servertech.com
SonicWall.....	13.....	sonicwall.com/nss
SunGard.....	17.....	www.sungardas.com
WildPackets.....	39.....	www.wildpackets.com

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

International Data Group

CHAIRMAN OF THE BOARD: Patrick J. McGovern

IDG Communications, Inc.

CEO: Bob Carrigan

Network World is a publication of IDG, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. IDG publishes over 300 computer publications in 85 countries. One hundred million people read one or more IDG publications each month. Network World contributes to the IDG News Service, offering the latest on domestic and

international computer news.

Publicize your press coverage in Network World by ordering reprints of your editorial mentions. Reprints make great marketing materials and are available in quantities of 500 and up. To order, contact the YGS Group, (800) 290-5460 ext. 148 or e-mail networkworld@theygsgroup.com.

Network World Events and Executive Forums produces events including IT Roadmap, DEMO and The Security Standard. For complete information on our current event offerings, call us at 800-643-4668 or go to www.networkworld.com/events.

Periodical postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #PM40063731. Network World (ISSN 0887-7661) is published twice monthly except for monthly in July by Network World, Inc., 492 Old Connecticut Path, P.O. Box 9002, Framingham, MA 01701-9002. **Network World** is distributed free of charge in the U.S. to qualified management or professionals. To apply for a free subscription, go to www.subscribeinw.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-877-701-2228. Nonqualified subscribers: \$5.00 a copy; U.S.—\$129 a year; Canada—\$160.50 (including 7% GST, GST#126659952); Central & South America—\$150 a year (surface mail); all other countries—\$300 a year (airmail service). Digital annual subscription rate of \$29.00. Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication. Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106. **PHOTOCOPYRIGHTS:** Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Network World, Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus 50 cents per page is paid to Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970. **POSTMASTER:** Send Change of Address to Network World, P.O. Box 3090, Northbrook, IL 60065. Canadian Postmaster: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A7C9. Copyright 2009 by Network World, Inc. All rights reserved. Reproduction of material appearing in Network World is forbidden without written permission. Reprints (minimum 500 copies) and permission to reprint may be purchased from The YGS Group at (800) 290-5460, ext 100, or networkworld@theygsgroup.com. USPS735-730



492 Old Connecticut Path,
P.O. Box 9002
Framingham, MA 01701-9002
Phone: (508) 766-5301

PRESIDENT & CEO: Michael Friedenberg

EXECUTIVE ASSISTANT TO THE PRESIDENT/CEO:

Pamela Carlson

SVP/HUMAN RESOURCES: Patricia Chisholm

SVP/EVENTS: Ellen Daly

SVP/CHIEF CONTENT OFFICER: John Gallant

SVP/DIGITAL: Brian Glynn

SVP/STRATEGIC PROGRAMS & CUSTOM SOLUTIONS

GROUP: Charles Lee

SVP/GROUP PUBLISHER & CMO: Bob Melk,

SVP/GENERAL MANAGER, ONLINE OPERATIONS:

Gregg Pinsky,

SVP/DEMO: Neil Silverman

SVP/COO: Matthew Smith

SVP/GENERAL MANAGER, CIO EXECUTIVE COUNCIL:

Pam Stenson

SVP/DIGITAL & PUBLISHER: Sean Weglage

SALES

VICE PRESIDENT/PUBLISHER:

Andrea D'Amato (508) 766-5455

VICE PRESIDENT DIGITAL SALES:

Elisa Della Rocco (201) 310-6763

Northeast/Midwest/Central

ACCOUNT DIRECTOR, INTEGRATED SALES:

Timothy Keough, (508) 766-5475

Southeast/Mid-Atlantic

ACCOUNT DIRECTOR, INTEGRATED SALES:

Jacqui DiBianca, (610) 971-0808, FAX: (201) 621-5095

Northern California/Northwest

ACCOUNT DIRECTOR, INTEGRATED SALES:

Julie Odell, (415) 267-4522

Silicon Valley/Southwest/Rockies/Utah

ACCOUNT DIRECTOR, INTEGRATED SALES:

Coretta Wright, (415) 267-4515

Marketplace/Emerging Markets

NATIONAL ACCOUNT MANAGER, EMERGING MARKETS:

Enku Gubaie, (508) 766-5487

ONLINE

Central/East

ACCOUNT DIRECTOR, DIGITAL SALES:

Melissa Rocco, (508) 766-5491

Midwest/Northeast

ACCOUNT DIRECTOR, DIGITAL SALES:

Stephanie Crossland, (508) 766-5369

Northern California/Northwest/Rockies/Utah:

ACCOUNT DIRECTOR, DIGITAL SALES:

Katie Layng, (415) 267-4518

Northern California/Southwest

ACCOUNT DIRECTOR, DIGITAL SALES:

Katie Albang, (415) 267-4510

EVENT SALES

ACCOUNT DIRECTOR, EVENT SALES, EASTERN REGION:

Michael McGoldrick, (508) 766-5459

ONLINE SERVICES

DIRECTOR OF AD OPERATIONS & PROJECT

MANAGEMENT: Bill Rigby

DIRECTOR, ONLINE ACCOUNT SERVICES: Danielle Tetreault

MARKETING

VICE PRESIDENT MARKETING: Sue Yanovitch

PRODUCTION

VICE PRESIDENT PRODUCTION OPERATIONS: Chris Cuoco

SENIOR PRODUCTION MANAGER: Jami Thompson

CIRCULATION/SUBSCRIPTION

CIRCULATION MANAGER: Diana Turco, (508) 820-8167

IDG LIST RENTAL SERVICES

DIRECTOR OF LIST MANAGEMENT: Steve Tozeski

Toll free: (800) IDG-LIST (US only)/

Direct: (508) 766-5633



BACKSPIN | BY MARK GIBBS

Thwarting employer Facebook snoops

IF YOUR employer or a potential employer asked you to hand over the keys to your house so they could search your possessions looking for something unspecified, I suspect you would be a little surprised and not a little outraged. Well, over the last few months there have been a significant number of reports of employers and colleges doing the digital equivalent of asking for your house keys by requesting Facebook passwords from employees, applicants and students.

For example, a widely reported Associated Press story covered how a statistician, Justin Bassett, applied for a job in New York and, because the interviewer couldn't see his private profile on Facebook, asked him to divulge his login information. Bassett not only refused, he withdrew his application saying "he didn't want to work for a company that would seek such personal information."

Well done, Mr. Bassett, but, alas, given the current unemployment rate, not everyone can afford to stand up for their rights.

In some cases, instead of asking for account passwords, employers ask to "shoulder surf." According to MSNBC, "In Maryland, job seekers applying to the state's Department of Corrections have been asked during interviews to log into their accounts and let an interviewer watch while the potential employee clicks through wall posts, friends, photos and anything else that might be found behind the privacy wall."

The least intrusive but still unacceptable form of monitoring is to demand that employees accept Facebook friend requests from management so the subject's social activity can be observed.

What I can't figure out is, who comes up with these policies? Who, sitting in their office, pondering the issues of potential staff or student

misbehavior, thinks to themselves, "That's it! We need to be as intrusive and coercive as possible!"? You have to wonder what comes next... mandatory cavity searches on entering and leaving work?

I suspect the reason these various organizations are so willing to overreach in the digital world is that it's easy, and obviously the "group think" driving their decision-making lacks any ethical or moral basis.

Real-world monitoring is hard to do, it's expensive, and there are laws that prohibit such invasive intelligence gathering, while monitoring social media is very easy to do, comparatively cheap, and there's little in the way of legislation to stop it.

This situation is wrong in so many ways, so it was with great pleasure I read that on April 27 Rep. Eliot Engel (D-N.Y.) introduced the Social Networking Online Protection Act, or SNOA, which is similar to a bill passed in Maryland last month.

SNOA would make it illegal for an employer or school to require you to provide your Facebook, Twitter, or other social network passwords during the hiring process or as a term of your employment, and the penalty for violations would be \$10,000 per incident.

Needless to say, SNOA is a work in progress. Getting the bill passed could be tricky and campaigns in support of SNOA will emerge so that, we, the great unwashed, can show our support for what will be groundbreaking legislation that, for once, will protect rather than weaken our digital rights. This is a bill that you have to support if you believe in your right to privacy online. ■

Gibbs is private in Ventura, Calif. Contact him discreetly at backspin@gibbs.com and follow him on Twitter (@quistuipater).



NETBUZZ | BY PAUL MCNAMARA

Watch Steve Jobs play FDR in Apple film

YOU'LL HAVE to go to Buzzblog (tinyurl.com/cjn6l4h) if you want to see Steve Jobs play-

fully portraying Franklin Delano Roosevelt, right down to the cigarette holder — it's there in all of its 20-second glory.

That clip is from an eight-and-a-half-minute film entitled "1944," also on the blog, that was Apple's in-house takeoff on "1984," the iconic first Macintosh TV ad that caused a sensation during that year's Super Bowl. Set as a World War II tale of good vs. IBM, it is a broadcast-quality production (said to have cost \$50,000) that was designed to fire up Apple's international sales force at a 1984 meeting in Hawaii.

A copy of "1944" was provided to me by onetime Apple employee Craig Elliott, formerly the head of Packeteer and now CEO of Pertino Networks, a cloud-computing startup two blocks from Apple in Cupertino. Elliott, who worked at Apple from 1985 to 1996, says he has "never seen (the film) anywhere else" and that there had been "no additional circulation" as far as he knows. I couldn't find it online, either — the year 1984 was pre-World Wide Web, of course — but that doesn't mean it wasn't out there. (It's been widely circulated since the blog post.)

Two snippets from "1944," without any dialogue, also appear in another Jobs video — a photo-montage tribute to him made by Apple employees to mark his 30th birthday. After Jobs died last October, Elliott posted that birthday video to his Facebook page, from where it went viral before being knocked off the 'Net by Sony Music Entertainment because it used a Bob Dylan song.

The connections between "1984" and "1944" were a bit on the



ham-handed side, as might be expected with this type of production.

Anyone who's seen the TV commercial no doubt will recognize in "1944" the reprised role of the female hammer thrower, although I'm not sure if it's actually Anya Major from "1984." And, if you recall, Apple's famous ad ended with a narrator intoning: "On Jan. 24, Apple Computer will release Macintosh. And you'll see why 1984 won't be like

"1984." This motivational film begins: "On Jan. 24, 1984, Apple Computer introduced Macintosh. And we saw why 1984 was like ... 1944."

While professional actors play the key roles in "1944," there are other Apple employees besides Jobs on screen, including Mike Murray, then vice president of marketing, as The General. Because allegations that Macintosh lacked software had dogged Apple prior to its release, the film takes pains in several places to counter that criticism, including purported pledges of support from Microsoft's Bill Gates, as well as Mitch Kapor of pre-IBM Lotus Development Corp. The crate smashed open by the hammer thrower in the film spills a pile of software.

Here's what Jobs says into a telephone in his big FDR scene:

"General, you and your brave fighting force have a rendezvous with destiny. Your battle will be long, it will be hard, but it will be won. I am sure your victory will be great."

He then hangs up the phone, turns toward the camera, drops an awful FDR voice and grins: "Insanely great."

You've got to see it. ■

Been hoarding a long-lost Apple video? The address is buzz@nww.com.

Building the engines of a Smarter Planet:

Our cloud takes care of the work. You take care of your business.

As IT budgets shrink, it's even harder for midsize businesses to manage IT resources and quickly respond to change. That's why IBM SmartCloud™ solutions are flexible, cost effective and offer access to security-rich virtual server environments—benefits that help any business innovate and reach markets fast. And whether the solution is delivered over a public, private or hybrid cloud, IBM and its Business Partners can help midsize businesses take all or part of their IT infrastructure to the cloud, and their business even higher. Choose IBM SmartCloud to:



Help improve productivity.

By provisioning new machines and gaining instant access to new resources and software, businesses are always ready to adapt to a changing marketplace.



Use resources more effectively.

IBM can identify areas that can be moved to the cloud, quickly freeing up skilled IT staff to work on higher-value initiatives.



Reduce IT costs.

Using pay-as-you-go with IBM SmartCloud can help reduce the need to invest in new hardware and cut IT infrastructure costs by up to 50%.¹

Partner with experts.

IBM and its Business Partners have decades of experience in providing consulting and integration services for the most complex of data centers.

IBM SmartCloud Enterprise

Flexible pricing estimated, starting around

\$56

per month

To connect with an IBM Business Partner,
call **1-877-IBM-ACCESS** or visit **ibm.com/engines/cloud**

Midsize businesses are the engines of a Smarter Planet.



¹Based on results from IBM's Technology Adoption Program. Results may vary depending on the client's existing environment. Final results can be ascertained after a return-on-investment analysis. Offer is subject to change or withdrawal without notice. IBM, the IBM logo, ibm.com, SmartCloud, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. © International Business Machines Corporation 2011.

It's not just a wool cap.
It's an opportunity.

Opportunities are created and protected
in the AT&T network.

In here, vendor access is secure.
Communications are simple and safe. Retail
transactions are protected — online and in-store.

As demand spikes, stores and suppliers can
react instantly. From any device,
anywhere in the world, buyers can contact suppliers
securely to get what they need overnight.

In here, a wool cap goes from "nice"
to "phenomenal" in one season.
To learn more, visit att.com/business

NEW TREND

GLOBAL
PHENOMENON



Download the free scanner app at <http://scan.mobi> and scan this code to learn more.

© 2012 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies.

Rethink Possible®

